Vol. XX. Part 9.

[Registered at the General Post Office, Melbourne, for transmission by Post as a Newspaper.]

NATIONAL MUSEUM MELBOURNE 22.9.22

The Journal of the Department of Agriculture of Victoria, Australia.

September, 1922.

PRINCIPAL CONTENTS

Annual Report—Standard Herd Test

List of Certificated Cows for Season 1921-22

Impaction Paralysis of Cattle

Founding a Pig Herd

PRICE THREEPENCE. (Annual Subscription—Victoria, Inter-State, and N.Z., 3/-; British and Foreign, 5/-)

AN INSURANCE AGAINST DROUGHT

BRUNNING'S Genuine "GARAWI"

SUDAN GRASS

SUDAN GRASS is the Best of all Summer Hay Grasses—Yields up to 8 tons per acre. Can be pastured, cut Green, or made into Hay and Ensilage. It is an Insurance against Drought, as it thrives under dry conditions where other plants WILL NOT live.

A PROVED DROUGHT RESISTER!

SWEET CLOVER

(Melilotus alba)

Sweet Clover is an excellent soil improver and thoroughly hardy. It yields excellent quality hay, and abundant pasture thoroughly palatable to all stock during the Spring, Summer, and Autumn. Only 8 lbs. of Brunning's High-Grade Choice Machine-Dressed Seed is required to sow an acre.

Sow the Genuine "Standard Quality"

HUNTER RIVER LUCERNE

Farmers! This unrivalled fodder plant is unequalled as a Pasture, Green Feed, Hay, and Ensilage. Excels every other plant in yield per acre. "Standard Quality" Seed is specially re-cleaned, tested, and triple-machine dressed, and is supplied only in sealed bags. Free from dodder and other noxious weeds.

SAMPLE AND PRICES ON APPLICATION

BRUNNINGS

F. H. BRUNNING Pty. Ltd.

64 ELIZABETH STREET, MELBOURNE

NATIONAL MUSEUM MELBOURNE

THE JOURNAL

OF

THE DEPARTMENT OF AGRICULTURE,

VICTORIA, AUSTRALIA.

CONTENTS.—SEPTEMBER, 1922.

		PAGE
Standard Herd Test—Tenth Annual Report	*J. M. Kerr*	513
Herd Averages		552
Cows in Order of Merit—250 lbs. standard		553
,, ,, ,, 200 ,, ,,		561
Heifers in Order of Merit		564
Impaction Paralysis of Cattle	*H. R. Seddon, D.V.Sc.*	570
Founding a Pig Herd	*R. T. McKenzie*	573
Reminders for October		576

COPYRIGHT PROVISIONS AND SUBSCRIPTION RATES.

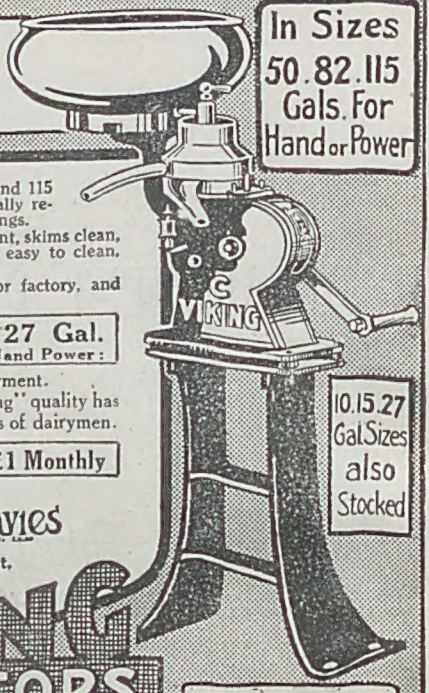
The Articles in the Journal of the Department of Agriculture of Victoria are protected by the provisions of the Copyright Act. Proprietors of newspapers wishing to republish any matter are at liberty to do so, *provided the Journal and author are both acknowledged.*

The Journal is issued monthly. The subscription, which is payable in advance and includes postage, is 3s. per annum for the Commonwealth and New Zealand, and 5s. for the United Kingdom and Foreign Countries. Single copy, Threepence.

Subscriptions should be forwarded to the Director of Agriculture, Melbourne. A complete list of the various publications issued by the Department of Agriculture will be supplied by the latter.

Big Machines At Small Prices

In Sizes 50. 82. 115 Gals. For Hand or Power



Large dairymen buy now. 50, 82 and 115 Gal. For Hand or Power. Specially recommended Prices show fine savings.
The "Viking" is wonderfully efficient, skims clean, and runs easily. Improved bowl, easy to clean, strong and rigid frame.
Made by world's largest Separator factory, and backed by 25 years' reputation.

Big Stocks 10, 15, 27 Gal.
: Easy Running Machines for Hand Power :

Old Separators taken in part payment.
Satisfaction guaranteed. "Viking" quality has been acknowledged by thousands of dairymen.

Terms : From £1 Down, £1 Monthly

10.15.27 Gal. Sizes also Stocked

Langwill Bros & Davies
110-114 Sturt Street, South Melbourne.

VIKING SEPARATORS

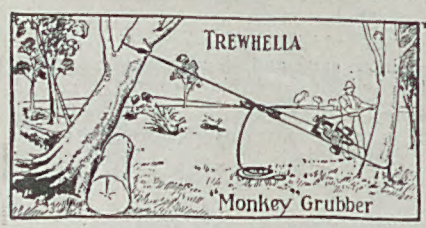
WHITE SWAN
Agricultural Lime

Lime Your Land

with the finest, purest, and strongest lime from Curdie's River

Either Burnt or Unburnt

J. H. RUDD & CO., 115 William Street, Melbourne



GRUBBING any variety of trees and stumps need not occasion you anxiety if your assistant is the Settler's Friend

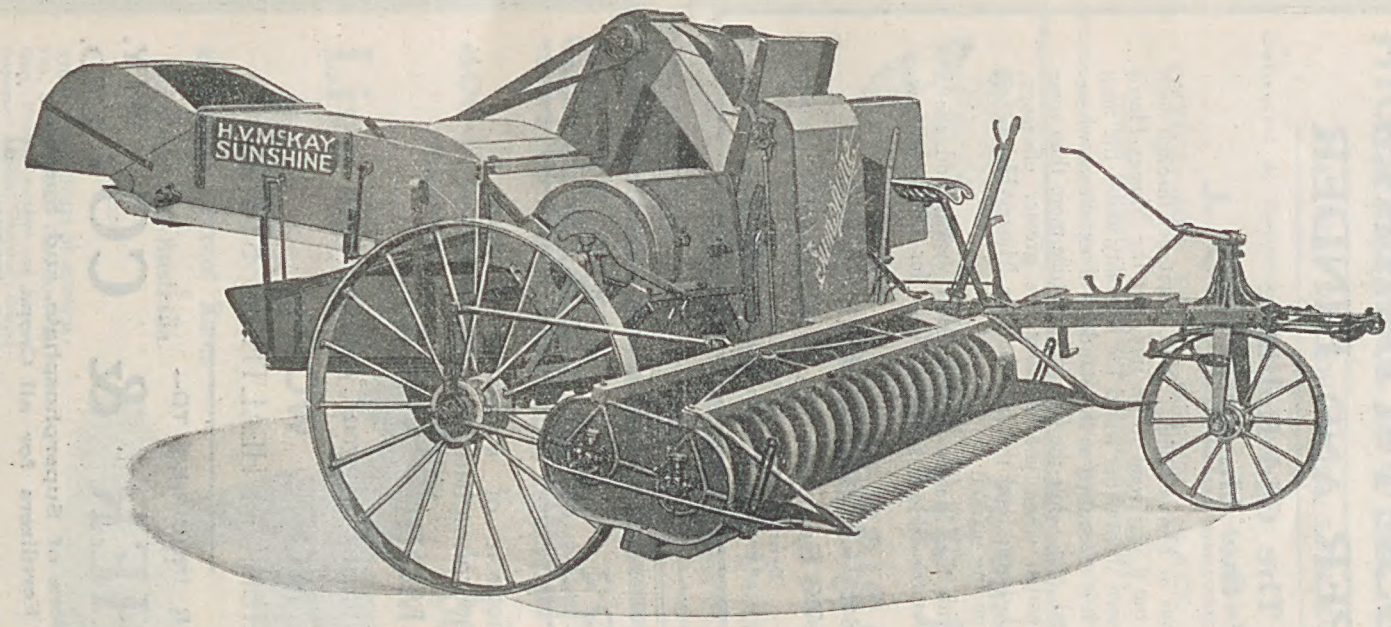
The "MONKEY" GRUBBER

The machine that gives your hands the strength of two hundred pairs and delivers your effort to the rope through friction reducing bearings.

Careful attention to detail and construction you are saved many minutes by the two speed gears, convenient length of each rope, the construction of Rope Coupling, Grab and Snatch Block.
The most efficient Grubber made.

Money and Land have been saved for thousands by it. Are you included?

TREWHELLA BROS. Pty. Ltd., TRENTHAM



The Sunshine Header Harvester or Reaper Thresher, as depicted above, is used at the Dookie Agricultural College, the Longerenong Agricultural College, the State Research Farm, Werribee, and also at the Government Experimental Farm, Bomen, N.S.W. It was invented and is manufactured in Australia. It harvests wheat, oats, or barley, and recovers the maximum percentage of the grain whether the crops are standing, fallen, or weed-infested.

MASSEY-HARRIS
REAPER AND BINDER

The Old Reliable of the Harvest Field

Delays are dangerous at Harvest-time. You might get through with an inferior Binder, but if you want to be sure, get the Massey-Harris Binder, which is known all over the world for reliability under the most trying conditions. It is recognised as the standard of excellence wherever Binders are used, and, while the first cost is a trifle more than some others, that is forgotten when you consider the greater efficiency, freedom from break-downs, and the fact that the Massey-Harris will outlast any Binder on the market.

Talk it over with the Massey-Harris Local Agent and see it during Show-week at the address below. Write for Catalogue now.

Massey-Harris Co. Ltd.
570-576 Bourke St., Melbourne
Branches in All States
Agencies Everywhere

FARMERS and GRAZIERS

The application of a heavier dressing of Superphosphate will produce

MORE WHEAT.

The top-dressing of your pasture means

MORE WOOL,
MORE MILK, and HEALTHIER STOCK.

ADDRESS YOUR INQUIRIES TO—

WISCHER & CO. PTY. LTD.

Manufacturers of Superphosphate, and Special Fertilizers for all Crops.

OFFICES:
153 William St., MELBOURNE.

WORKS:
Whitehall St., YARRAVILLE.

HIGH-GRADE BONE MANURE

MEAT MEAL FOR POULTRY FILLS THE EGG BASKET

Delivered at Railway Station, Footscray, or on Wharf, Melbourne

J. COCKBILL, BONE MANURE MANUFACTURER

OFFICE—407 POST OFFICE PLACE, MELBOURNE

BONES BOUGHT. CONSIGN TO ME, FOOTSCRAY. TELEPHONE 2098

BLYTH'S TRADE MARK WILL NOT BURN FOLIAGE REGISTERED ARSENATE OF LEAD

13 Years Practical Tests

The Renowned

"BLUE BELL"

Arsenate of Lead

Secure your orders at once.

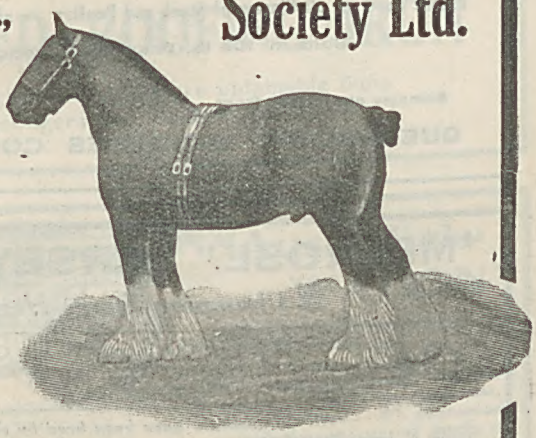
F. W. PRELL & CO., 31 Queen St., Melbourne

SOLE VICTORIAN AGENTS

'Phone 7419 Central

The Australasian Mutual Insurance Society Ltd.

400-2 Collins St.,
MELBOURNE.



Live Stock Insured

at Lowest Current Rates obtainable in Australia.

OTHER DEPARTMENTS OF BUSINESS.
Fire, Marine, Fidelity Guarantee, Plate Glass, Personal Accident and Sickness, Employers' Liability, Workmen's Compensation, Public Risk, Motor Car, and Burglary.

☞ INSURE WITH THIS SOCIETY, AND RECOMMEND IT TO YOUR NEIGHBOURS

RESULTS TELL!

FARMERS, THIS WILL INTEREST YOU

The following is the average yield obtained in the wheat plots at Longerenong Agricultural College for five years ending 1919:—

MANURE.	Average Yield for 5 Years.	Increase due to Manure.	Profit Taking Wheat at 4/- per Bushel.
	Bushels.	Bushels.	
1. No Manure	23·8	Nil.	—
2. Superphosphate, 56 lbs. ...	30·4	6·6	£1 6 1
3. Superphosphate, 1 cwt. ...	31·5	7·7	£1 10 10
4. Superphosphate, 2 cwt.	**33·1**	**9·3**	**£1 17 2**

INCREASE THE DRESSING OF SUPERPHOSPHATE PER ACRE, and obtain the maximum profits from the acreage cultivated. Don't forget the following improvement in the stubbles. Try an increased dressing this year for yourself.

Works—
Yarraville
(Vic.)
Nth. Fremantle
West Australia

M.L.

SUPERPHOSPHATE
FOR WHEAT

MOUNT LYELL CHEMICAL WORKS

Office—
"Collins House,"
381 Lt. Collins
Street,
Melbourne

SUGAR CANE MOLASSES

For STOCK, in 40 Gallon Casks and 4 Gallon Tins

"MOLLERNE" (Pure Sugar Cane Molasses and Lucerne Chaff)

Patent Food for all Classes of Stock and Poultry — Highest in Protein and Carbohydrates

Sold in 100 lb. Bran Bags, ready for the Feed Box

USE IT LIKE BRAN

Samples and prices from

QUEENSLAND MOLASSES COMPANY, MELBOURNE

"MELROSE" JERSEY STUD FARM

A Champion Dairy Herd of Victoria

1st Prize Herd	1916	and	1918	Government	Herd	Test
2nd " "	1917	"	1919	"	"	"
3rd Herd	1920			"	"	"

All Competitors have been bred by owner for generations

Breeder of Jessie 6th of Melrose, only cow twice Champion under Government Herd Test Regulations, 541¼ lbs. butter fat; Rarity 8th of Melrose, Champion Cow of Australia, with 718¾ lbs. butter fat in 273 days, 40 lbs. milk on last day of test; First Choice of Melbourne, Sire of 1st Prize Herd, 1919

Young Bulls from Large Producing Cows for Sale

W. WOODMASON, POSTAL ADDRESS:— "TWICKENHAM," WAVERLY ROAD, MURRUMBEENA, VIC.

SUPERPHOSPHATE PROFITS

WHY NOT GET THE BENEFIT OF THESE

The Phosphate Co-Operative Company of Australia Limited

WILL MANUFACTURE SUPERPHOSPHATE
FOR THE BENEFIT OF ITS SHAREHOLDERS

OTHER MANURES NOW AVAILABLE

Only a Small Proportion of Shares remain Undisposed of

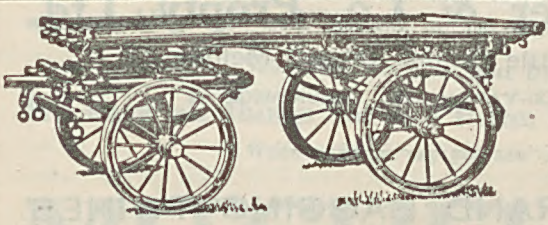
PRODUCERS ONLY CAN BECOME SHAREHOLDERS

Full particulars from—
Head Office—440 Little Collins St., MELBOURNE.

JAS. B. ROBERTSON, Secretary.

LYSAGHT'S
ORB
CORRUGATED ROOFING IRON

Full supplies throughout Australia are obtainable from all leading Ironmongers and Timber Merchants



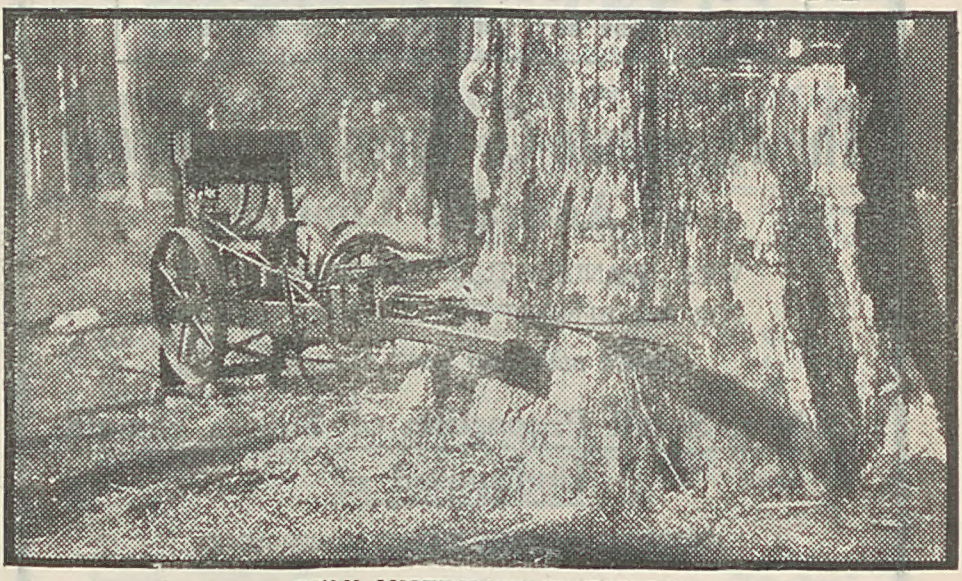
"Australia's WAGON"

Hildyard Steel Wheel Wagons at the Front. They are now fitted with twin roller bearings, 33 per cent. saved in draft. More durable than ever. Less wear and tear. No boxes to crack. We guarantee them. The rollers run in oil in dustproof races. They are now perfection, and we can supply to carry all weights as usual for wool, wheat, or farm. Ordinary axles supplied if preferred.

J. J. Gordan (Ardlethan) says:—"The 5 ton, 36 in. and 40 in. dia. wheel wagon you supplied me runs splendid. I am putting 60 bags of wheat on 2 horses. That proves its light draught."

Send for Catalog Now **HILDYARD WAGON WORKS,** KENSINGTON, MELBOURNE, VIC.

The Quick Cut Auto Logger



ONLY AUSTRALIAN INVENTION

Look for it at the Show—Lennon Avenue Stand 46

WRITE TO GRATEFUL PURCHASERS

Registered Office:—197 KING STREET, MELBOURNE, VICTORIA

J. M. & Co. TRADE MARK

ANCHOR BRAND

DOUBLE REELED

Harvest Twines

THE ABSOLUTE BEST

Manufactured by

James Miller & Co. Propty. Ltd.

357-359 Little Collins Street, Melbourne

WORKS—YARRAVILLE. BRUNSWICK

ANCHOR BRAND BAGGING TWINES

ARE THE BEST ON THE MARKET

Sold by Merchants, Storekeepers, &c., &c.

COMBINED DRILL AND CULTIVATOR

(Footboard removed to show tines clearly)

EITHER SPRING OR RIGID TINES
TWO IMPLEMENTS IN ONE
SAVES CULTIVATING BEFORE DRILLING

NOTE THE EXTRA HIGH WHEELS

Wheels are 6 inches higher than others, giving

LIGHTER DRAFT
GREATER CLEARANCE AND LIFT FOR TINES
RIMS WELL AWAY FROM HOPPER

The 4 rows of teeth are all level when at work. 14 inches between teeth gives plenty of clearance for trash. Tines fixed adjustably to floats, built extra strong for stumpy land. Plants 7 inches apart. Depth controlled by levers and spring pressure. Machine may be thrown out of gear without lifting the tines. Strong forecarriage. Any width points can be supplied, and loops instead of boots for rough mallee country. The Mitchell is much superior to others and very low in cost of upkeep as unbreakable steel used instead of castings wherever possible.

See one before you buy.

We have all things for the farm, dairy, and road.

Write. Please say you saw this.

MITCHELL & Co. Ppy. Ltd.

W. Footscray. 596 Bourke St., Melbourne. Burwood (Sydney).

DEPARTMENT OF AGRICULTURE

POULTRY FOR SETTLERS

Orders may now be booked for Sittings of Eggs from the Poultry Pens at Werribee

WHITE LEGHORNS

No. 1—Pure Cosh World's Record Strain, mated to a Cock bred from "Lady Ormond," who laid 301 eggs in 11 months at Burnley Competition - Price, £2/2/-

No. 2—From Single Tested Hens 240 to 272, mated to Cosh-Swift x Moritz Cock, whose mother laid 275 eggs in 12 months - - - Price, £2/2/-

No. 3—From Cosh-Swift x Moritz Hens, mated to Cockerels bred from Single Tested Hens with scores of 272 and 285 - - - Price, £1/1/-

Note.—W. N. O'Mullane's Champion Burnley Pen 1914-15, which established a still unbeaten World's Record for White Leghorns, was the progeny of a hen hatched from a setting from these yards.

UTILITY BLACK ORPINGTONS

No. 1—From Single Tested Hens with scores of 256 to 284, mated to a Cock whose mother laid 313 eggs in 12 months - - - - Price, £2/2/-

No. 2—From Single Tested Hens with scores of 236 to 269, mated to Cocks whose mother laid 284 eggs in 12 months - - - - - Price, £1/1/-

RHODE ISLAND REDS

No. 1—From Single Tested Hens with scores of 245 to 272, mated to Cocks bred from a hen that laid 292 eggs in 12 months - - - Price, £2/2/-

No. 2—From Hens bred from Tested Stock, mated to Cocks whose mother laid 264 eggs in 12 months Price, £1/1/-

To allow for infertile eggs, sixteen eggs will be forwarded for each sitting. No guarantee of fertility or replacement will therefore be made.

A limited number of Cockerels and Cocks bred from birds specified above are available for sale. Price, £2/2/- & £1 1/- each. 1/- extra for crating

Postal Order or Cheque should accompany Order, which should be addressed to

THE MANAGER, RESEARCH FARM, WERRIBEE

IMPROVED GROWTHS

AND

INCREASED YIELDS

attend the use of

Sulphate of Ammonia

in the Orchard

Enquiries to:—

THE METROPOLITAN GAS CO.

196 Flinders Street, Melbourne

FARMERS and GRAZIERS

NATURE helps those who help THEMSELVES.
FALLOW your land and RETAIN the MOISTURE.
Heavier Dressings of NATURE'S Plant Food.

"Federal" Superphosphate

Will Increase your Wheat Yield

Grass Lands TOP-DRESSED with "FEDERAL" SUPERPHOSPHATE yield more WOOL, a greater percentage of well-nourished LAMBS, and Increased Quantities of MILK.

Particulars supplied by

The Australian Explosives & Chemical Co. Ltd.

135 William Street.

'Phone: Central 4795 (two lines).

Works: DEER PARK, VICTORIA.

REGISTERED TRADE MARK

Works—
CURDIE'S RIVER

Telephone—Central 2807

"BULLDOG" Unburnt (Ground Carbonate) Agricultural Lime

For Orchards, Crops, and Pastures

Its use is strongly recommended by all experts, and those who have had practical experience. Any quantity supplied at shortest notice.

For applying to land we recommend our "Ajax" Lime Spreader

Have you seen our Reinforced Cement Cattle and Pig Troughs?

Rates and full particulars from Distributors—

T. CURPHEY Pty. Ltd. 225 Coppin St. Richmond, Victoria

BURNT LILYDALE LIME

FOR THE LAND

Farmers who have not used **Burnt Lime** should try it. The action of Burnt Lime on the land is **Immediate.** The demand for Building Lime having slackened owing to the War, Farmers have the opportunity of getting a supply of the **well-known Lilydale Lime.**

ANALYSIS go as high as 98% Calcium Oxide.

Apply—

DAVID MITCHELL ESTATE, Sole Proprietors, **OLIVER'S LANE, MELBOURNE**

Works—Cave Hill, Lilydale, Tel. Lilydale 4. **Tel. Central 5726.**

"VALLO"

WEED, SCRUB & TREE KILLER

Cheapest and Most Concentrated Killer on the Market.
3 lbs. makes 50 gallons of Solution costing less than one penny per gallon.

In Powder Form—Mixes Readily in Cold Water.

PRICES: 56 lbs., 70/—15 lbs., 21/3—7 lbs., 10/6—1 lb., 2/-—½ lb., 1/3.

OBTAINABLE ALL STORES

A. VICTOR LEGGO & CO. Manufacturers of 'VALLO' Brand —Chemicals, Dips and Sprays—
HEAD OFFICE: 497-503 COLLINS ST., MELBOURNE
And at SYDNEY & BRISBANE. *CORRESPONDENCE INVITED.*

THE USE OF

SICKLE BRAND

FLORIDA SUPER

ENSURES INCREASED RETURNS
TO
FARMERS—GRAZIERS—DAIRYMEN

WHEAT

HEAVIER DRESSINGS OF 90 to 112 lbs. PER ACRE INCREASE SUBSTANTIALLY THE YIELD OF WHEAT

MILK — WOOL

A TOP-DRESSING OF 1 CWT. OR UPWARDS PER ACRE ON PASTURE LAND, INVOLVING AN ANNUAL OUTLAY OF ONLY A FEW SHILLINGS, IMPROVES THE QUALITY OF THE GRASS—MAKES CATTLE AND SHEEP MORE HEALTHY—ENABLES THE LAND TO CARRY MORE PER ACRE—RESULTING IN GREATER RETURNS, AS THE CASE MAY BE, OF BOTH MILK AND WOOL

WRITE FOR PARTICULARS CUMING, SMITH & CO. PTY. LTD.
65 WILLIAM STREET, MELBOURNE

DEPARTMENT OF AGRICULTURE, VICTORIA

NOW AVAILABLE

Handbook of Potato Diseases in Australia—and their Treatment

By D. McALPINE,
GOVERNMENT VEGETABLE PATHOLOGIST.

With Appendices by W. Laidlaw, B.Sc. (Biologist), on **Eel Worms**; and C. French, Jnr. (Government Entomologist), on **Insect Pests of the Potato.**

235 Pages (Cloth). 58 Full Plates. 176 Illustrations. Price, 5/- Postage: Commonwealth, 2d.; New Zealand, 8d.; British and Foreign, 1/4.

Applications accompanied by Postal Note or Cheque, covering Price and Postage, to be forwarded to **The Director of Agriculture, Melbourne, Victoria.** Remittances from beyond the Commonwealth to be made by Post Office Order.

NATIONAL TRUSTEES

Executors & Agency Company of Australasia Ltd.

DIRECTORS:

HON. WALTER MADDEN, Chairman and Managing Director.
EDWARD FITZGERALD, Esq., LL.D. MICHAEL MORNANE, Esq. HENRY MADDEN, Esq.
Senator Brigadier-General H. E. ELLIOTT, C.B., C.M.G., D.S.O., D.C.M.
H. V. McKAY, Esq., C.B.E.

This Company Acts as Executor or Joint Executor of Wills, Administrator, Trustee of Settlements, and Agent for Absentees under Power of Attorney.

MONEY TO LEND ON BROAD ACRES AND FARM LANDS

Offices—113 Queen St. (Corner of Little Collins-st.), Melbourne

J. H. MACOBOY, Assistant Manager. *HON. WALTER MADDEN, Managing Director.*

New Zealand Loan & Mercantile Agency Co. Ltd.

COLLINS ST., MELBOURNE

LIBERAL CASH ADVANCES

WOOL, SKINS, HIDES, TALLOW, BARK, STOCK AND STATION AGENTS
ON COMMISSION ONLY

LOCAL SALES AND SHIPMENTS OF BUTTER UNDERTAKEN ON OWNER'S ACCOUNT

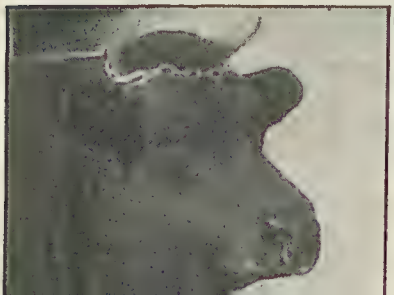
Agents for

PAGE'S WIRE STRAINERS IRONSIDE WIRE CUTTERS
BAILEY'S ANTI-MAMMITIS LOTION

COOPER'S SHEEP DIP

THE BEST

COOPER'S MILK OIL FLUID WEEDICIDE
COOPER'S WORM TABLETS MEDICO
COOPER'S LAVENE

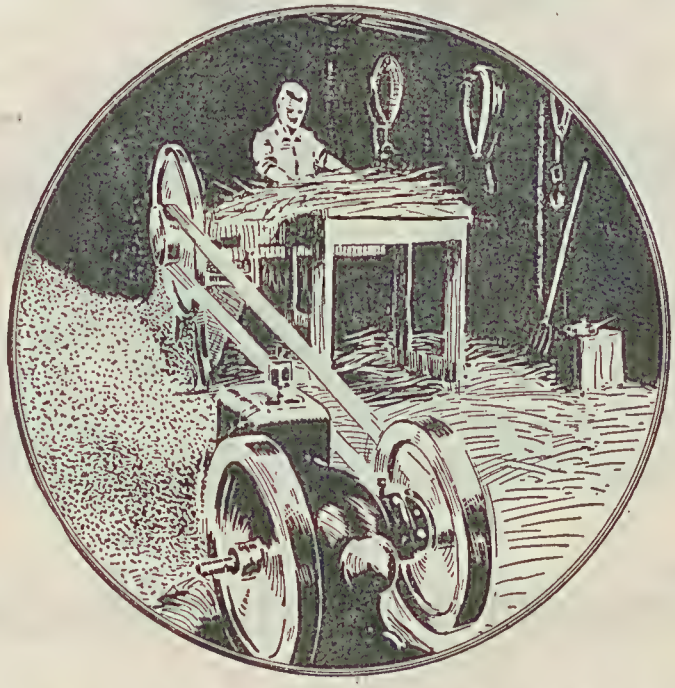


The "Banyule" Jersey Stud

Heidelberg, Victoria——8 miles from G.P.O.

ALL GOVERNMENT TESTED

YOUNG STOCK FOR SALE



SHELL FARM OIL

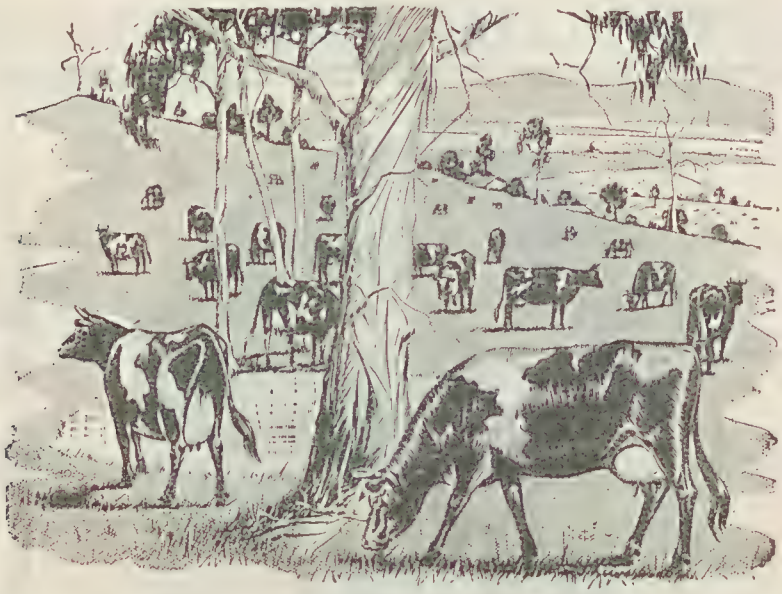
is a high-quality amber-colored Oil graded to meet the lubrication of the lighter types of Farm Machinery. It possesses great heat-resisting properties, and will be found to flow freely under all conditions.

Stocks held by all Leading Stores.

The British Imperial Oil Company Limited

ALL STATES & NEW ZEALAND

MP L6



New Zealandia Milking Machines

The New Zealandia Milking Machine is natural in its action and effect. Attached to all four teats it milks alternately two at a time. As in hand milking its pulsations produce a steady flow of milk, but being mechanical its action is more regular than the most expert hand milking. It is simple to attach and work the machine, cleaning it is an easy matter, and the whole process is more profitable than the older method. The New Zealandia is a paying investment for the owner of 5 or 500 cows. Like the hand, its rubber-lined teat cup adjusts itself to the teats of all cows.

The International line of dairy-farm machines also includes other essential machines such as cream separators and kerosene engines.

See the IHC local agent about your dairy equipment when next in town or write us direct for catalogue.

International Harvester Company of Australia Pty. Ltd.

543-555 Bourke Street, Melbourne

Agents Everywhere

NATIONAL MUSEUM MELBOURNE

THE JOURNAL

OF THE

Department of Agriculture

OF

VICTORIA.

Vol. XX. September, 1922. Part 9.

THE STANDARD HERD TEST—SEASON 1921-22.

Conducted by the Department of Agriculture.

TENTH ANNUAL REPORT.

(J. M. Kerr, Herd Registrar.)

"Tested" not "Certificated."

Before entering upon any remarks in reference to this Herd Test, there is need to warn dairymen of the necessity of discriminating between a TESTED and a CERTIFICATED cow. The word "tested" is frequently abused by being applied to animals whose milk has been tested perhaps only once, or may be to one that has been tested and failed, and which may be the veriest duffer. If a seller of a cow claims that she is tested, let him point out her records in the annually published reports of the records. Dairymen need warning not to be misled by reference to a "tested" herd or a "tested" cow, in absence of the actual records over the whole nine months' lactation. Mere high test is not enough. The value of a test depends on the milk that goes with it. The only thing a cow can be judged on is the total butter-fat for the nine months, which is published in an annual official bulletin, and is available to any dairyman who may apply for a copy.

The Present Low Average Return.

As a rough estimate, the average annual butter-fat yield in Victoria is set down at about 160 lbs. per cow. On the face of it, this miserable figure, representing a gross money return, on a liberal basis, of say £200 per year from a number of twelve cows (a man's full ten hours' labour), which necessitate an original capital outlay of approximately £1,200, would appear to give a clue to the preference displayed by most younger men for city occupations. That part of the dairyman's

misfortune is, however, within his own power to remedy, as has been done in so many of the herds whose returns appear below.

A return like that mentioned is sufficient in itself to explain any dissatisfaction which might exist with regard to the dairy-farming life. Poor and all as it is, we cannot fairly go on all the time making accusations of incompetence from afar, and altogether ignore the peculiar difficulties against which the man on the land has to contend. If a dairy-farmer will not educate himself to his calling in these days, his piece-work occupation exacts the full penalty, and some of them are paying it. If the severity of the inevitable punishment will not stimulate a man to better things, then neither will recrimination do so. This is recognised, and whatever is said in this report is said in the interests of the industry as a whole, without any wish to speak harshly of any worthy individual, however low his income. When a man is honestly struggling against odds, want of appreciation helps in no wise, and appreciation cannot be withheld from men who, in spite of their most obvious ineptitude, not only perform the, comparatively, child's task of holding the home market with their product against all comers, but continue to carry on for the rest, on whatever might accrue to them from the competitive prices on the other side of the world. This is a great work in itself, and while one is more or less decrying the average farmer's managing capacity, as reflected in the low average returns, it is only fair to recognise the character which achieves this distinction, so praiseworthy in a local industry.

By what virtue does the dairy-farmer thus perform what so many refuse to attempt? One would like to attribute the achievement to especial efficiency entirely, but cannot honestly do so. We know positively that our dairy-farmers are accomplishing a great task, but one has only to be acquainted with the personal working of the farms throughout the State to know that there is no general evidence of such superior efficiency as would of itself explain the feat. Then, how is it done? Undoubtedly because in the great majority of cases farmers are satisfied with little, or, in other words, by an efficiency of endurance rather than of methods. This is decidedly unsatisfactory in an industry which can continue to exist only by progress. All the same, there is no other explanation, and there is plenty of evidence of it out on the farms; if there were not, the knowledge of the low butter-fat returns would confirm it.

The fact of the matter is, that any remotely situated industry, obliged to hold its own in an open market, cannot hope to maintain labour conditions any more decent than its competitors unless it can bring to the task a superior efficiency of method and plant. In proportion as this is lacking, sacrifice in the form of either longer hours of labour, or its equivalent—smaller remuneration—has to be accepted and endured. We may go on selling our butter in London for the same price as our competitors and imagine we are competing, but if it is done by undue sacrifice, as in the case of so many of our dairy-farmers, it is none the less failure.

Whether the hard-working farmer realizes it or not, the fact remains that butter-fat, which costs the selling price to produce, is severe coin with which to acquire a farm. And yet, how very numerous are

those who are struggling on to purchase their homes with just this sort of earnings. It may be their own fault, or it may not. Whether it is or not is, from a State point of view, beside the question. The important point is that they are failing, inasmuch as they are unprofitably employed in occupying a full year of time to produce half a year's fair income, and can provide no source of wealth from which to finance necessary national expenditure, without absolutely crippling themselves to a degree of hardship utterly unendurable. Their displacement would be no actual economic loss had the State a more competent class of man available and willing to step into the breach. But this more intelligent class is, alas! mostly elsewhere, and shows no disposition, under present conditions at all events, to display its mettle at dairy-farming. We must either educate the man we have, or make it worth while for better men.

The Winning Herd.

Owned by Mr. T. Mesley, "Warenda," Dalyston.

8 Mature Cows averaged 466·52 lbs. Butter Fat.
3 Second Calf Cows averaged 454·82 lbs. Butter Fat.
5 Heifers averaged 409·08 lbs. Butter Fat.

Increasing Rural Population of the State.

The problem of supplementing the State's rural population is a matter of popularizing country as compared with city conditions. With all due respect to those who advance the introduction of such things as telephones, high schools, motor roads, and organized amusements, &c., as sufficient to do this, all of these together would not likely prove so potent a charm for the purpose as the great outstanding need—higher relative remuneration. This can take no better form, for needy people, than common cash, immediately negotiable.

The spur of necessity is behind us, and this has to be effected somehow, if the present-day tendency to abandon the country for the city is to be countered and the financial stability of the nation preserved. Whether the adjustment of the remuneration in the desired direction can be better brought about by deducting from the present standard of the city or by adding to that of the country is for the "powers that be" to determine. If the latter is to be the policy, no

more useful or opportune project was ever launched than the present scheme of testing for the utility pure-breds, which must be the nucleus of all our future dairy stock, if the satisfactory profits now worthily won by some are ever to become general, the only thing which will ever make dairying the asset we hope for—a popular, self-supporting industry.

The objective of the Government Herd Test is definite, and it is significant that its heartiest advocacy is coming from the most progressive men of the industry, who are best qualified to know. If it does not mean better profits for those dairy-farmers who avail themselves of its lessons, it means nothing. It is offered by the people's Government in appreciation and recognition of the important position

Reserve Annual Champion Cow.
Mr. G. A. Waite's "Dominion Segis Fobes."
(Born 21.9.16.)

Season.	Milk. lbs.	Test.	Butter Fat. lbs.
1921–22	18,895	3·26	615·81

the dairy-farmer occupies in the community. It was instituted not a day too soon. The fact can no longer be blinked that much of the unpopularity of the dairy-farming life is due to the difficulty so many experience in anywise comfortably making ends meet. Too often the farm can be held only by the occupiers denying themselves common comforts which have now become human rights, or else by throwing their families into the breach to stop the fatal financial drift, which otherwise must go on wherever any but high-class management prevails. Such living conditions can never be popular with the mass; and so it is that the willingness of people to stay on the land is wrapped up in that "blessed" word "remuneration," which, when used as a solution of the "drift to the city" problem, might well be honoured with a capital letter. It enters just as largely into the

present movement for increased immigration, seeing that the assisted new-comers are expected to prefer the landed occupations. In the end, it will be the relative remuneration which will determine their place of domicile as assuredly as it is now influencing the native-born. See how the acreage sown to a particular farm crop increases as soon as its price rises to a proportionately higher level. Likewise, just let the relative remuneration be increased where the people are needed, and the equilibrium of population will be restored in one act.

In the absence of anything occurring to reduce the present debit side of his account, any dairy-farmer is, and will remain, an industrial inferior who cannot bring his credit entries up to at least 250 lbs. of butter-fat per rationally-fed cow. The portentousness of this fact exists in the greatness of the present disparity. This reveals a serious position for a country of comparatively empty spaces which depend for their peopling on the popularity of the landed occupations. Mr. Clapp has admitted that one of the greatest difficulties with which the Railways Department is beset is the sparseness of the rural population. Anything which can be done fairly to increase the popularity of dairy-farming must eventually prove to be good policy, and it is eminently a function of the Agricultural Department of the State to concern itself, as it is now doing, with at least that unnecessary diminution of earnings which is inseparable from the miserably low gross butter-fat returns.

The Cause for the Present Low Average Yield.

No time need be lost in searching for the causes of the dairyman's poor showing in this direction; it is already well known. When a healthy dairy cow fails to yield at least 250 lbs. of fat per year, the cause need not be sought further than in her breeding, feeding, or handling. If one of these factors is defective, it is quite sufficient to nullify even perfection in the others, and there are few farms where there is not room for at least some improvement in respect of one or another of them, and likely enough all three.

The Object of the Herd Test.

Until the Government Herd Test was instituted ten years ago, the officers of this Department were not in a position to offer more than general advice as far as the quality of the animals was concerned, and, consequently, had to attack "the small yield problem," mainly as a matter of feeding. The feeding and general treatment of the cow are no less important than her breeding (in fact, all are interrelated); but there is no food, however good, which will turn to milk in a cow that is inherently incapable; consequently, better feeding can be recommended for good cows only, or at least cows that will correspondingly respond. These represent but a proportion of the total cows, and until dairymen place themselves in a position to know which from which, it is doubtful if advice to feed more liberally would ever give any real economic gain in the aggregate. In fact, unless the feeder knows the respective capacities of his animals, more generous feeding may easily result in lowered commercial return through sheer waste of good material.

Advice on feeding was thus ever stultified by farmers refusing to keep comparative milk records, and also because, in the absence of tested pure-breds, a herd-owner was necessarily at a loss to know where the recommended class of bull, likely to beget the responsive cow, could be obtained. The best bulls in those days were merely "pure-bred" as the herd-book rules interpret the term, but it has long been recognised that something more was wanted. Breed-purity, in itself, never was, never is, and never will be quite a sufficient indication of the merits of a dairy cow, so long as the breeder is so self-conceited as to imagine that his judgment is as good as the scales and tester. And so it was that in pre-Herd Test days, there was no means of knowing whether a pure-bred bull was pure in the essential principle of production—the only kind of purity likely to much improve the position of the general dairy-farmer.

This, then, was the position:—Granted the Victorian average butter-fat yield was discreditably and dangerously low; granted this was largely due to the inherently poor "dairy" quality of the animals; granted the inferiority was due to the haphazard mating of good, bad, and indifferent parents; what was the best thing for well-wishers of the industry to do? In the circumstances, the old and easy platitude, "breed better," was little better than mere mockery. "Breeding better," if it means anything, means breeding by selection, which, in the case of the general dairyman, means selecting the right bull. But what evidence worth while had any one of the producing principle in any bull he might purchase at that time? And what chance has the would-be improver, if this knowledge be lacking? Very little, indeed!

To be able to recognise, with any degree of certainty, the real dairy cow (when she exists), her own producing capacity, and that of all her surrounding genealogy must needs be known. Consequently, to make any considerable improvement over the whole State, reliable records of very many animals must be available; in fact, there can never be too many, nor can the information be made too wide-spread. There is need especially to identify every potentially good bull wherever he exists.

Can any one suggest how this valuable information can become public property except by a system of State herd-testing, and can any one propound a scheme which will answer the purpose more effectually than the Government Standard Herd Test? Even its most ardent critics baulk at doing this. The lowness of the State's average butter-fat return is evidence enough, in all conscience, that the industry needs an uplift, but this is far off unless we attain the better class of cow which this scheme of testing makes possible. Logically, all those farmers, at least, who obtain the sub-average returns should be malcontents; if not with some one else, then with themselves. They have primitive tastes, indeed, if they are satisfied with the monetary return from such a yield, and one would expect that they would seize with avidity upon any proposition that would better them financially. Yet we see no whole-hearted support, either material or moral, coming from the general dairy-farming community for the present herd-testing scheme, designed, conducted, and almost wholly financed by the Government for their especial benefit. It only serves to show the preponderance in the industry of a type unable to recognise a business

bargain when they see it. This is really the chief lack of the industry. It needs, most of all, more men possessed of commercial instincts, and this is the class of man it would pay the State best to win back to the vocation. It wants more men who calculate in terms of £ s. d.; who appreciate that the pound-note that takes twelve hours of labour to earn is not as good value as the one that takes eight; who grasp the meaning of return from capital, as distinct from labour return; who know what overhead charges and turnover mean; who recognise the importance of efficiency in both working plant and management.

It is a significant fact that, generally speaking, this class of men is divorced from the calling, and the problem for Governments is, why?

"Mutual Confidence."

Mrs. T. Mesley and the top heifer, "Agnes of Warenda," which yielded 527·20 lbs. butter fat on first calf, and 497·72 lbs. on second calf.

When this type of man preponderates on the farms the industry can be regarded as having been saved. If a larger representation of such men could be brought about, this herd test, and similar movements, would be far more speedily effective. Good managers there are; we meet numbers of them. But it seems that the industry of dairy-farming is dissolving itself into either the very smart or very dull, and it cannot be gainsaid that it has more of the latter than is good for it. The successful men win through to their prosperity only by unsparing devotion to the business, as well as the labour side of the calling. They all possess a certain wide-awakeness, not necessarily paraded, that enables them to sense quickly what pays, and they adhere

to a practice or an article of plant—animal or implement—only as long as it proves itself profitable. They themselves are the keenest critics of their own methods. On the other hand, there is the larger class that is practically proof against all innovation; good unskilled labourers, but incapable, apparently, of comparing forms of investment, and quite ignorant of what a proposition should return to be "paying." Where a business-man would refuse to continue without at least 6 per cent. interest on the capital outlay and a manager's salary, clear over all working expenses, including wages for all engaged, these stolid farmers hold on, unimproved and unimproving in most cases, through sheer inability to calculate what their business is really returning them.

Mr. P. J. Maloney's "Czarina of Springhurst."

(Born 16.4.14.)

Season.	Milk	Test.	Butter Fat.
	lbs.		lbs.
1916–17	5,411	5·34	289·15
1917–18	6,692	5·72	383·17
1918–19	5,961	5·37	320·49
1919–20	7,063	5·53	390·75
1920–21	7,507	5·39	404·60
1921–22	9,637	5·47	536·84

It is hard to blame any one for ignorance, seeing that it herein exacts its own penalty, but it is doubtful if they would long persist in an occupation for which they are by nature so unsuited, if it were not that the same dull-wittedness which incapacitates them as dairymen also precludes them from comprehending what labour, no more skilled than theirs, is commanding just "over the range."

The passive resistance which any step for the industry's betterment meets with in this well-represented but difficult class, is the greatest obstacle that the "better stock" movement has to overcome. In view of the indifference of this numerous "ruck," which promises nothing better than stagnation, the State cannot afford to discourage progressiveness when it appears, and particularly the fine example set

by a number of the younger generation of dairymen, returned soldiers among them, who seek the services of the herd-test and welcome the advice of its officers. Nor can it afford to miss the opportunity for progress which the pure-breeders' willingness to submit their stock affords. The State wants bulls pure as well as proved; numbers of them. Not having material from which to furnish them itself, the offer of the existing pure-bred herds as a source of the right class of animal is very acceptable. In accepting the offer the Government was not concerning itself with the interests of the pure-breeders, as such, at all. The non-progressives of the industry are glad of any pretext for not approving an innovation, and some profess to believe that this herd-test movement was a cute scheme of the pure-breeders to sell their stock. This is a baseless assertion, not justified at the time the test was initiated, and which has not a single selfish action by any of the founders to support it, before or since the test began. In fact, its founders have always objected to its being exclusive—not a selfish objection by any means. Any pure-breeder who loyally conforms to the conditions imposed by the State is performing a public-spirited action, inasmuch as he is submitting his property to the State to be used as an instrument for national gain, in the knowledge that he can hope for reward only in proportion as the material he provides is the sort the State desires. No one doubts, nor does any one of them deny, that he hopes to be recompensed in the increased demand for good stock, but that can never eventuate to one till he produces the good stock and thus serves the State well. A testing herd-owner cannot afford to breed duffers, for the searchlight of the test exposes these as effectually as it advertises the worthy. That there are breeders who are willing that their cattle shall stand on their merits alone or fall, is fortunate for the State, and surely to the credit of the men themselves. To begrudge them whatever monetary gain is theirs, from thus making better and ever better animals available to dairyman throughout the State, would be, surely, no less mean-spirited than "muzzling the ox when he treadeth out the corn."

Is Heavy Milk-yielding Quality Hereditary?

As long as there is anything in the theory of heredity (faith in which is growing rather than wilting), testing is cheap at any cost ever likely to be incurred. Whatever the testing owners may win from it, the gain must be infinitely greater to the industry in general. Putting heart into the workers in the outposts is surely good national policy, and there is not an officer connected with the herd-testing work but wishes that its greatest gain may go to the general dairy-farmers, wherever they may be, who have the "nous" to pluck the fruit to which the herd-testing is but the inviting ladder.

By our testing and recording, any dairyman with the will is enabled to ascertain which animals are most likely to carry the valuable quality of milking heavily, richly, and long—the attribute which gives value to a dairy cow in proportion as she possesses it, and which we hope to make a constant character, always transmissible to the progeny. This is not yet quite possible with our present stock, and with some breeds less than others. But notwithstanding the present limitations and the occasional disappointments, there is no weight of opinion contending that

one is as likely to get good milkers from non-milking mothers as from heavy-milking ones. The first essential is for one to know what class of animal he is working on, and this is the part that this herd test is going to play. When we have found the high producer we cannot yet insure that she, however mated, will transmit the quality to her offspring, but we do know, even now, that she stands a much better chance of doing so. Advocates of breeding by selection believe that the uncertainty can be whittled away, generation by generation, to eventual elimination, if only such animals as are pure for production be bred from. It must be some time before the motley cattle at present composing the general dairy herds can be brought to this stage of development. There is hardly an owner, however, who cannot straightway afford to take the initial step by concentrating on the bull.

Mr. H. Luxton's "Captor's Thora."

(Born 22.5.12. Formerly owned by Mr J. Scott.)

Season.	Milk. lbs.	Test.	Butter Fat. lbs.
1917–18	7,398	5·46	404·09
1918–19	7,334	5·55	403·87
1919–20	5,155	5·24	270·25
1921–22	8,583	6·06	520·42

Sufficient is known about the laws controlling heredity, or inheritance of character, in plants to indicate the line that should be followed, but the difficulty is to apply the principles to the somewhat different and more tedious reproduction of cattle. But we have the satisfaction that more is being discovered on the point every day through experiments which, in one place or another, are constantly being conducted.

In the limits of existing knowledge, dairy-farmers, in selecting a bull, cannot be expected to do much more than insist that the desired quality should exist in at least his dam and his sire's dam. Of course, the more antecedents possessing it, the better—continuity in the generations is very convincing. If one can only do so, it is better still to know that the bull has already been transmitting it to his

heifers. This enhances a sire most of all, because it makes for certainty; the ancestry gives only the hope; the progeny is actual consummation. Consistently good progeny is a real virtue in a sire, to which everything else might reasonably be subordinated. The owner of such a bull might well be the envy of all dairymen. Yet instances are known of such bulls going early to the chopping-block at ridiculously low prices. Why? Through the owner's folly in not testing his cows and consequent ignorance of the bull's real worth—a fatality of the common conceit of "judges."

Hoard's Dairyman recently gave the instance of the Jersey "Stoke Pogis 3rd," one of America's most prepotent dairy bulls, sold to a butcher for 30 dollars, while an agent was chasing after him with an offer of

Messrs. Lyon and Kerr's "Molly of Clover Flat."

(Born 3.11.15.)

Season.	Milk. lbs.	Test.	Butter Fat. lbs.
1918–19	6,510	6·20	403·81
1920–21	8,499	5·87	499·07
1921–22	8,943	5·84	522·36

1,000 dollars—too late; a premature sale and a premature slaughtering, the money loss of which could not be estimated. But it must not be forgotten that there are also bulls the money loss of rescuing which would be equally difficult of estimation. Stoke Pogis 3rd was the progenitor of a whole family of high-producing Jerseys. He was a pure-bred dairy bull in all respects, from which the element of chance had been eliminated by close attention to the laws of breeding. He was all of a piece—the result of transfusion after transfusion of the desired quality, or rather the elimination after elimination of undesired qualities, right down his pedigree.

The "make-up" of our old familiar "scrub" or mongrel bull is very different. In him are variations innumerable. Using him on

good cows is a definite step backward, and on poor cows is but to perpetuate defects unending. If variety, in its entirety, were being sought, he is the sire *par excellence*. As a disturbing element and upsetter of calculations in the kingdom of kine his class stands alone. To let the blood of such an animal get mixed up with that of any other, from which breed improvement is expected, is like attempting purification by adding contamination. He possesses no factor in sufficient degree to mark anything he begets, unless his own objectionable characteristic, instability, can be so called. A mosaic of multifarious types himself, he multiplies the variations with his progeny, and in so doing, scatters broadcast the very tendency it is the whole art and concern of the breeder to overcome.

The making of a pure-bred is nothing more than the abolition of this tendency of variation, which so utterly unsuits a bull for sirehood. But far faster than our progressive breeders can breed it out, our "scrub" bull-owners let it recur by default. It is a race for supremacy between good and evil. It would be something achieved for the better if the average dairy-farmer could be persuaded only thus far, that if feeding does not pay it is because his cows are what they are, and his cows are what they are just because he is not giving the attention he should to their breeding. The readiness of so many to use any kind of male ox to sire their dairy heifers, forces one to the conviction that a large proportion of the dairy-farmers have not yet learned what the word "pure-bred" means. It would be well if they could know that the cattle which have been raised to the status of pure-breds came into being as a result of the demand for better-quality animals, and became entitled to the name only after many generations of select mating. The result is that, whereas the desired character may occasionally occur in a cross-bred animal as a matter of chance, and goes no further, it is in pure-breds the product of design, to be passed on. In breeding young dairy stock it is loss of both time and money for the breeder to tolerate a mating that does not give him sound reasons for anticipating what characteristics the progeny will possess. The points which have been preserved in the pure-breds are, in the main, virtues, and at least nothing which is positively detrimental to the animal's value has been willingly retained. The desired characters have been so often included, and the undesirable so consistently rejected in the evolutionary process, that the resulting product has come to take the form and character of the material it is made of. The only thing that prevents such animals from being more generally adopted is the apathy of the very class which would derive the greatest gain from their use.

There is hope in the educational effect of the Herd Test, for the roots of the farmer's apathy have their hold in nothing but ignorance. No man is so bad as to be breeding scrub bulls with that deliberate and definite aim. They are simply the outcome of "letting things slide," which is, after all, more frequently due to mental than to muscular sloth. The owners might know something is pinching them, but it does not occur to them to suspect their "scrub" bull. The men themselves do not realize that there is as much need to protect themselves in the matter of procuring their animals as there is in the purchase of manufactured goods. When buying the latter, are they satisfied with anything at all?

Does not any man of sense prefer to patronize a trade mark of repute? Which of them is prepared to accept any yellow metal as eighteen carat gold? At any rate, not one of them is so foolish as to repeat such an error; yet many go on year after year depending on a "brummagem" sire—a sire that is no better than unstamped jewellery or an article on which the maker is ashamed to put his name. Hence the numerous scrub animals there are, masquerading as dairy cows, and hence the numerous unprofitable butter fat returns, far more numerous than necessary, which all arise from sheer neglect on the part of the victims to learn the A B C of the stock husbandmen's calling, as old as the calling itself, that one cannot gather figs from thistles.

There is but one way to make general the class of cow which will give high interest on the outlay which her keeping involves, and that is

Mr. T. Mesley's "Gazelle 2nd of Warenda."
(Born 27.7.16.)

Season.	Milk. lbs.	Test.	Butter Fat. lbs.
1921–22	9,601	5·35	513·67

to breed her on test data. Would that there were an easier way! Disappointments in the process of breeding up there may be, but in the main it will be one of progress, and it can be anticipated that whatever occasional setbacks may be experienced, these will become so rare as to be insignificant once the blood of the breeding animals has become fully infused with the right principle (of production).

Some breeders are soon needlessly discouraged by their young stock failing sometimes to inherit the expected character. In the present imperfect state of the breeds this cannot be guarded against absolutely. It is the price that has to be paid to discover the impure, and it is part of the process of detecting the pure and desired character. It means that certain ingredients have entered into the product in this particular gestation that were foreign to the principle; and this, notwithstanding

that perhaps both the parents possessed in themselves, as far as could be externally judged, the particular characteristic that was desired in the offspring.

Mendelism in Breeding Dairy Cows.

This is far from being in conflict with the laws of heredity as they apply to an unfixed character. If such a setback shakes a man's faith in the scientific theory of heredity it is because he has been interpreting too literally the saying "like begets like," so commonly used to express the principle. That like begets like is true only of mating two similar animals in which the principles have been "fixed," or in other words, are pure characters. Of course like begets like inasmuch as the offspring of cows will always be calves, but not until the breeder's art had been applied could it be promised that certain attributes possessed by the parents would be reproduced in the calf.

Now we can safely predict that a certain character like, say, colour and hornlessness will recur in the offspring. We look forward to a black and white colour in the Friesian, but only because the parents are pure to the character, and the hornlessness of the Red Poll is similarly assured, provided that pure parents are used; likewise, a true Ayrshire from Ayrshire parents, and a true Jersey from Jerseys. This much was achieved by breeders selecting long ago only those animals for breeding, which were possessed of the particular type that they desired to perpetuate in the breed. As far as certain breed points are concerned they have now become bred in so intensely that like will unfailingly produce like at practically every asking.

Thus far (that is with pure characters) the claim that like begets like needs no qualification. Neither has it to be qualified as a general principle, because it is equally certain that if the practice of exclusively selecting one desired quality be pursued long enough, reproduction of that character can eventually be made a certainty. Even starting with cross-breds or nondescripts, by breeding only from the individual descendants that conform to the type aimed at, and rejecting all others, it is only a matter of time and patience till every animal born is not only like the original specimens, but also able to transmit the character in unfailing genealogical succession. More time, of course, would be required, and many, very many, of the resulting animals, in the early stage especially, would have to be discarded as useless for the purpose.

And so it is, in breeding for an unfixed character like high butter-fat production. This will not deter any breeder who has even a slight knowledge of the Mendelian law of heredity, by which the course of character descent is determined. All characters do not act similarly because all characters are not equally fixed, and consequently much experiment and observation will be necessary before it can be predicted exactly, how the character of high production behaves in the generations when systematically bred for. There are some simple single characters which can be directed any way by mating them according to Mendel's law, which governs their heredity. A statement has recently been published that test and milk yield can be classified into two separate and distinct Mendelian characters. If so, important results may be looked for.

Mendelism teaches that, provided the character is a Mendelian one (that is, behaves as certain characters did under Mendel's original

experiments), and provided the right male and female can be identified and mated, the course that the character will take in the different offspring can be pre-determined. If there is one thing striking in the operation of Mendel's law more than another, it is its revelation that there are certain animals (impure dominants) which, when mated, must by nature throw a percentage of offspring unlike themselves. This is of special interest to dairy-cattle breeders because it means that good animals in themselves are not necessarily good animals to breed from. This makes for difficulty in fixing a character, and this is what embarrasses so many animal breeders—two parents equally well possessed of a character themselves, failing to beget similar offspring. Animals which

Mr. C. Deverell's "Brighton Princess of Springhurst."
(Born 17.4.16.)

Season.	Milk. lbs.	Test.	Butter Fat. lbs.
1918–19	5,325	5·51	293·18
1919–20	5,327	5.06	269·76
1920–21	5,266	5·34	281·49
1921–22	9,208	5·52	508·73

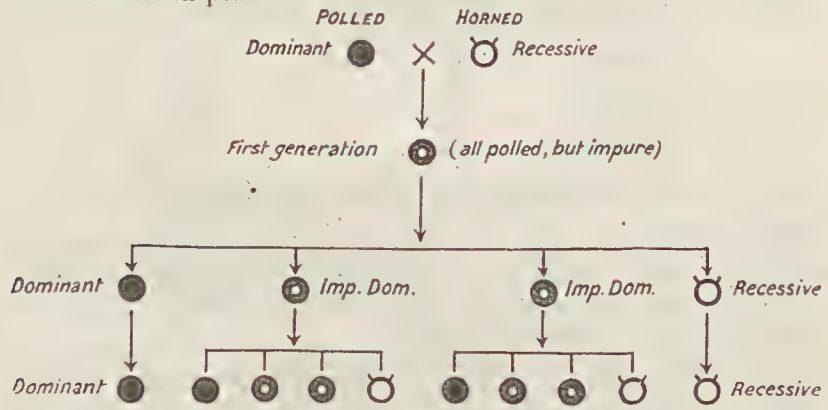
consistently mark their progeny with their own likeness are commonly known as "prepotent."

Mendel's discoveries throw a great deal of light on what brings about prepotency. Many experiments with very many specimens eventually led him to class characters under but three headings—"dominants," "recessives," and "impure dominants."

These terms must not be understood as referring to a whole animal with its complex structure. This was Mendel's first helpful idea—the hopelessness of regarding the whole complex organism as a single unit. There are many characters combined in one animal's "make-up," such as colour, size, shape, and innumerable others. Each particular character must be taken singly and dealt with as a separate unit in itself—either dominant, impure dominant, or recessive.

One of Mendel's most simple experiments in plant-breeding may be given as an illustration. Taking tall and dwarf pea plants, he cross-fertilized the flowers, and in due course sowed the seed thus fertilized. All the progeny came tall—there were no dwarfs whatever. Tallness was thus proved to be "dominant" and dwarfness "recessive." Although these tall offsprings lacked nothing visible as specimens of the true tall pea, contamination had none the less entered, and was but waiting for the progeny. These apparently true tall plants were allowed, on flowering, to self-fertilize (that is, tall with tall). The result was not all tall plants, as might have been expected, but tall and dwarf, in proportion of three tall to one dwarf, but none of intermediate size. This was a remarkable result, in view of the fact that crossing tall and dwarf had given all tall as progeny. It was further noticed that this proportion (3 to 1 approximately) repeated itself every time the experiment was made. Each single plant was then allowed to self-fertilize in the natural way. One tall out of every three bred true, giving all tall progeny; the dwarf bred true to dwarfness, while the progeny of the other two tall plants split up in the same proportions as before, viz., three tall and one dwarf and nothing intermediate. The eye could detect no difference between the tall which bred true and the two that did not. But it was so, and occurred every time the impure dominants were self-mated, viz., one pure dominant (the tall, which bred on), two impure dominants (tall plants, which split up their offsprings), and one pure recessive (dwarf, which bred on).

Tallness and dwarfness thus showed themselves Mendelian characters pure and simple, the one dominant and the other recessive. The cross-mating of a dominant and a recessive character will always produce all apparent dominants in the first generation, which will, in turn, just as invariably transmit the different classes in the proportion stated. There are animal characters which behave similarly. In Polled Angus cattle the polled character is a true dominant, and if crossed with a horned type will descend as shown in the diagram hereunder, which is exactly as did tallness in peas.



The first generation all come polled, but not pure, as further breeding proves. If mating is confined to these animals of the first generation, the offsprings split up as shown, viz., three polled and one horned. It will be seen that of every four animals begotten, only two possess their

visible character in pure degree (one of the polled, and one horned) notwithstanding that all are of identical breeding, and three are identical in appearance as well. One of them breeds on, true to hornlessness; the horned also breeds on, true to horns; the other two (polled) split up their progeny the same as their parent had done before them. So that of every four animals in the second generation only two possessed the property required by the breeder—prepotency, or the ability of an animal to reproduce its own character in all its offspring. The other two were no better than their parents in this respect, in fact their breeding character and that of their parents are identical, always giving the same proportions of 1—2—1 in every four offspring—one dominant which transmits its own true character, two mixed breeders (impure dominants) like the parent, and one recessive which also transmits the recessive character (unless out-crossed). The impure dominant is ever the same hereditarily unstable compound.

The above is a practically unvarying rule of character descent when two animals pure in the alternate characters are mated. It shows that a plant or animal seemingly true is not necessarily pure, and how it can be proved only by two generations of progeny, either backward or forward. The fact that the first generation of offspring, all carrying the character of hornlessness, were able to transmit it to only seventy-five per cent. of their offspring, and of these latter only one-third, or twenty-five per cent. of the whole, inherit it in fully dominant degree, explains the rareness of prepotency in cross-breds.

It is not contended that the animal breeder has the same chance of using Mendelism as the plant-breeder, but from a study of the above exposition of the law's working, the less experienced breeders for high production may learn how it is that disappointments occur, without necessarily affecting the soundness of the theory of heredity.

It was the same frequency of disappointment which always met any systematic attempt at plant-breeding that led Mendel to his original experimenting, and it is too early to say yet that his discoveries have no application to milk production. Mendel, starting in the first place with the complete or pure article, was eventually able to learn how a simple pure character could be built up, by first separating it into its component parts. He showed the course some simple hereditary characters are most likely to take down through the generations, according to the degree of inherited ability which the parent possessed to give them impetus one way or the other. He located the direction and blazed the trail for all men following, who would observe.

Plant-breeders have already put the discoveries to good use. They, however, have the advantage of being able to select specimens to start with, which have been all along re-producing their own special peculiarity at every seeding. (Would that we could put our hands as easily on a few animals as equally possessed of pure milking character to start with.) Another advantage they have is that all the members of a generation—dominant, impure dominant, and recessive—arrive together, and the third generation, which first reveals the desired specimen, can be attained within three years from starting. Again, butter-fat production is by no means a visible character like, say, tallness and dwarfness in peas, or the hornlessness of Red Polls. After an animal has been born we have to wait for milking age, and then the time requisite for recording

and testing over at least one lactation. By the time this can be ascertained the grand-parent from which she sprung is probably dead. But a greater difficulty than all, besetting the would-be breeder for production on Mendelian lines is the fact that it is a female characteristic which has to be taken practically on trust in the male parent, which he proposes to use. This difficulty can be got over, at present, only by having available as a sire a comparatively aged bull proved by three generations of progeny; but a bull producing the right heifers and having high-producing ancestors for two generations back can, for all practical purposes, be presumed to be pure in this characteristic—all the more so if he should happen to have high-producing sisters as well. This animal

Mr. J. H. Rogers' "Pearl of Riverside."

(Born 25.8.13.)

Season.	Milk. lbs.	Test.	Butter Fat. lbs.
1919–20	7,171	4·42	316·83
1920–21	9,057	3·81	345·59
1921–22	10,704	4·56	492·35

takes some getting, but otherwise we must largely depend on chance for our good animals.

Before the law can be given any intelligent systematic application in practice, it is necessary to know what are the requisite factors which make up butter-fat production. The character is essentially a composite one, depending equally on at least two factors, milk yield and test, or quantity and quality respectively. It might be obtained in an animal of low fat-test, provided the milk yield is inversely proportionate, or it might be obtained with a lower milk yield but correspondingly high test. In either case a good constitution is required, and may be presupposed, because continuous high-fat-production can be accepted as the very best proof of constitution. Some experimenters have asserted, as before

mentioned, that a constitutionally high tester crossed with a constitutionally low tester will invariably result in a low testing offspring. Also that heavy milk yield mated with low milk yield begets a heavy-milking offspring. This would mean that low test is dominant to high test, but high yield is dominant to low yield. The ideal animal, if she could only be found, is one with both yield and test high, and even then she must be able to transmit these qualities. The double character naturally complicates matters somewhat, but that fact only does not make the matter hopeless, because breeding for two characteristics at the same time is quite a common practice of plant experimenters.

To illustrate what happens when this is done, let us once more take Mendel's old subject, the pea plant, but along with the two dominant and recessive size-characters, let us include the colour characters—red and white—and cross the tall red and the dwarf white (although it would make no difference if tall white and dwarf red should be taken). The following diagram (read from left to right) shows the analysis of results, which practically never varies in the average.

Parent Plants.	1st Generation.	2nd Generation.
		—Tall Red.
		— „ „
		— „ „
		— „ „
		— „ „
TALL plants, with RED flowers (Dom.)	All Tall Red plants	— „ „
(Dom.) ×		— „ „
		— „ „
DWARF plants, with WHITE flowers (Rec.)		—Tall White.
(Rec.)		— „ „
		— „ „
		—Dwarf Red.
		— „ „
		— „ „
		—Dwarf White.

As usual, only the dominants of each respective character appear in the first generation. In the second generation out of every sixteen plants there are nine tall red, three tall white, three dwarf red and one dwarf white. This makes twelve tall plants in all, and four dwarf ones; twelve being red-flowered and four white, or thirty-two characters, altogether, in sixteen plants. The dwarf plants all bearing a recessive (dwarf) character, could be nothing else but pure in that character; similarly with the recessive-charactered four whites in the colour character. But tall being a dominant character, there is one pure (dominant) tall and two other (impure dominants) talls for every dwarf, so that in the twelve tall plants there are only four pure to tallness, the other eight tall ones being mixed breeders for this character of size. The same rule applies to the twelve red (dominant colour) plants. It appears intricate, but the rule is nevertheless there. Without wishing to pronounce for or against the theory of production in milking animals being made up of two Mendelian characters (time will tell), there are a few things which suggest themselves as practicable if it should be so.

Presuming high test and low milk-yield to be the two recessive characteristics, then—

(1) If a bull never begets a low-testing heifer when mated with a high-testing cow, he would be thus proved a recessive in the test character (a high-test animal), because if he were a dominant (low-test), even a high-testing cow could not throw a high-testing heifer to him. (A recessive can never reproduce its character when crossed with a pure dominant). That would be one way to prove if a bull had high-test character.

(2) If the same bull never leaves low milk yielders from light-milking cows he must be a dominant (high yield) as far as milk is concerned. He would thus be the bull everybody wants—high yield

Messrs. Kerr Brothers' "Morven Queenie 8th."
(Born 5.3.14.)

Season.	Milk. lbs.	Test.	Butter Fat. lbs.
1920–21.	8,701	3·92	341·00
1921–22.	11,581	3·82	442·12

and high test combined. Poor cows could be systematically used thus to test the prepotency of a bull. And once it is known in what degree a character is possessed, the standard can always be kept.

(3) If a bull never gets a high-yield animal from low-yield cows he must be a yield recessive (low), and necessarily not much good, unless he compensates for it in test character.

(4) If the same bull never gets a high-test animal when mated with a high-test cow, he must be a dominant (low-test) as far as test is concerned; and consequently proved doubly bad, lacking both yield and test character. If (and it is a big "if") high milk yield and low milk yield are really dominant and recessive Mendelian characters respectively, and if high test and low test are similarly related (but the high character recessive and the low dominant

in this case), then, with our herd test data to help, we ought to be able to prove the character of a bull by experimental mating, either on females chosen for their combined low yield and high test (double recessives) or cows possessing either of the characters. In any case such experiments would soon show whether there is anything in the theory as stated.

The improvement that breeders have already effected in the milking function of cattle leaves practically no doubt at all that production is an hereditarily transmissible character, and consequently subject to Mendel's law of heredity. The examples above are given only on the assumption that it is of the simplest form of Mendelian character, which it probably is not. The thing that breeders have mainly to fight is that invisibly unstable compound—the impure dominant. Except by breeding on further there is no way of distinguishing this uncertain breeder from the pure dominant.

Enough has been said to show the connexion, as far as simple characters are concerned, between prepotency and dominance. A dominant character is always prepotent, but a pure recessive can be quite prepotent with a recessive mate; 50 per cent. prepotent with an impure dominant mate; and lose prepotency altogether in the first generation when it meets with the pure dominant. However, although a run of prepotency may not prove an animal to be dominant in the character, it certainly does prove it pure in the character. Unfortunately all unit characters cannot be classified into simple dominants and recessives. There are some which appear to be ramified into greater complexity by the sex element.

To take an instance, there is the horned character of sheep which, when crossed with hornlessness, has a habit of inheritance altogether more complicated than that of the same character in oxen. (This may be read in Punnett's "Mendelism".) In Dorset sheep both sexes are horned. Suffolks are not horned at all. Whichever way these two pure-breeds are crossed, the result is the same—the ram lambs are horned and the ewes hornless. Mating the males (horned) and the females (polled) of this generation gives both horned and hornless males, and horned and hornless females, but in very different proportions. Among the rams nearly three-fourths are horned, but of the females, three-fourths are polled. Thus the difference between the horned character in the Dorset sheep and that of oxen is not only in its being dominant instead of recessive in the first cross, but also in being affected by sex.

Sex-linked characters are of special interest to dairy-cattle breeders, because of the prevailing belief that milking character comes from the sire and is transmitted to his heifers mainly, or perhaps only. This has not yet been verified. Too little is known of the real degree of heredity possessed by the character of butter-fat production. There is certainly too little known to enable the breeder to derive much systematic help from existing knowledge in breeding his dairy animals. Whether the breeder is conscious of it or not, his art is nothing more than exploiting the laws of heredity or reproduction, and a more exact knowledge of the subject must be of service to him in the conduct of his operations.

The foregoing simple exposition of its action with regard to some simple plant and few animal characters will have fulfilled its purpose if it makes the apparent vagaries of character-descent in milking animals

(which the best of breeders occasionally experience) more understandable. The remarks are designed to impress on breeders the fact that inheritance of milking function is a question of individuals, and of the gametes (germ cells) at that, rather than of the entire animal organism. Identity of appearance is no sure guide to breeding merit, even when breeding for a visibile character like horns, let alone a comparatively elusive character like milking function.

Two individuals similarly bred, and indistinguishable in outward appearance, may have entirely different breeding propensities. This is the law's teaching.

The application of Mendel's law to animal breeding means concentration on one character at a time. Experiments first on small fast-breeding animals like rabbits may be the obvious policy for visible characters, but can give us practically no help towards milking character.

Mr. T. Mesley's "Garenne 4th of Warenda."
(Born 15.8.19.)

Season.	Milk. lbs.	Test.	Butter Fat. lbs.
1921–22	7,180	6·05	434·35

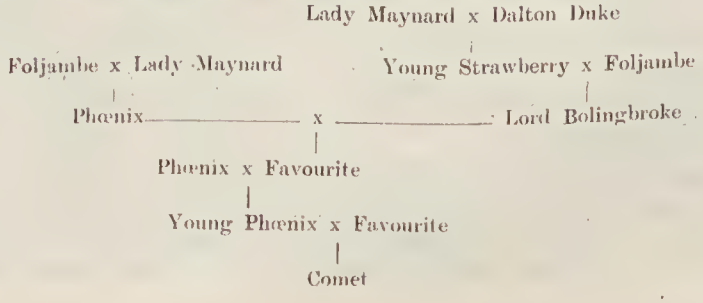
If the law is ever mastered we shall be able to breed a beast pure to the degree of prepotency in two generations, and pedigrees any further back will become superfluous as far as that particular characteristic is concerned.

In the meantime, there is no reason whatever to doubt that all character inheritance is determined by natural law as certainly as is the course of a river; but the law as it pertains to animals is extremely intricate. Plants offer the simplest field for experiment, and, perhaps, with animals, more success will come from connecting known plant-successes with our existing experience of animal breeding, rather than from any forward experimenting which could be conducted with animals themselves. Mendelism is but the small discovered part of the laws of breeding. The greater unknown part bears no special name as yet, but it is there. The Dorset and Suffolk sheep experiment did not follow

the ordinary simple Mendelian rule, but, nevertheless, there was law operating; else why did the first-cross result recur time after time whenever the horned Dorsets were crossed with the polled Suffolks?

There is, just as undoubtedly, a law controlling the inheritance of udder capacity. It is possible that even now a close-detailed survey of our herd-test records would do something to reveal it; and some investigation would certainly have been made before this to either establish or explode the theory of test and yield dominance discussed above, had there been time to spare from the ordinary routine test duties. Time will not detract from the value of the accumulating data. In fact, the record of yields which is being built up now will be even more valuable to the breeder of the near future than to those who are finding it so useful to-day. If the test continues, it is only a matter of time till every herd-book cow in the State is the bearer of a yield-label, along with her herd-book number, and it will need to be quoted just as frequently. This will make a cow's producing capacity practically a visible character, or at least as reliable to the breeder as if it were.

Animal breeding on Mendelian lines almost necessarily implies in-breeding, or at least a modification of it, in the early stages however. This cannot be a fatal objection, because close breeding is not necessarily out of accordance with good dairy practice. Already experience shows how frequently close-breeding has been responsible for speedily and effectively fixing a desired type. In-breeding has been likened to dynamite—it will either "do or damage," according to the handler. To show that it need not do all damage when the breeder is a master-hand, there is the well-known old-time successes of Bakewell, the Colling's Brothers, Bates, and many other subsequent, but equally successful, breeders in England, who practised it to more or less extreme lengths. Who ever heard of a more closely-bred animal than the world-famous Shorthorn bull "Comet," bred by the Collings? Of course, we do not know how many animals were damaged before this superb specimen of the English Shorthorn was attained. "Comet" was as in-bred as he was perfect. This is how he was bred: The bull Foljambe was mated with Lady Maynard and got Phœnix, and with a daughter of Lady Maynard and got Lord Bolingbroke. Then Lord Bolingbroke and Phœnix were mated. This was the first close step—putting a bull on his own mother's half-sister, which was also his own father's daughter. The result was Favourite. This bull, thus close-bred already, was put back on his own mother (Phœnix), and got a daughter, Young Phœnix, which, mated back with her own father (Favourite), produced Comet, than which there has never been much better.



What makes it all the more remarkable is that Comet's full brother, the "Durham Ox," was an equally fine type of animal. Another of the most-renowned bulls of England, Bates' Duke of Northumberland, was got by putting the bull Belvedere on to his own daughter. And there are many other English examples which could be cited.

To come nearer home, there is the instance of the "Darbalara" shorthorns in New South Wales. That fine cow Melba, 7th of Darbalara, which yielded 869½ lbs. of fat in a season, was the outcome of putting Emblem on his full sister's daughter. Nor did Mr. Cole stop at that. He then mated this close-bred daughter of Emblem's with a son of Emblem (half-sister and brother), and the result was Melba 15th, as robust-looking a cow as her mother, and, more important than relative looks, a still higher producer. When bulls as closely bred as "Comet" can become champions of England, and cows as closely bred as Melba 15th of Darbalara yield 954½ lbs. of fat in a season, it certainly seems that the breeders seeking to achieve the ideal dairy cow need never decline the short-cut that Mendelism might offer just because of its involved necessity of in-breeding. Of course, it is recognised that in-breeding intensifies defects as well as virtues, and unless a breeder can be sure that the animals are good enough to stand it, he had better go no further than the occasional introduction of a typical member of a related family. The novice would be well advised to confine himself to one close mating, and never using any animal showing any sign of degeneration, especially one that is itself the product of close-breeding.

It is much safer to use a close-bred male than a close-bred female. A male escapes the additional strain on the system that maternity imposes, and it is significant that most of the well-known successes are the result of mating animals whose relationship is through a common male relative rather than a female. If half-brother and sister are to be mated, it is better, as a general rule, to have the relationship through the father. The same applies when mating uncle and niece or aunt and nephew. The *Journal of Genetics* (April 1921) contains a record of experiments which would indicate that close-breeding through a male relative increased both yield and test; whereas a female connecting link gave no improvement in test worth mentioning, and actually reduced the milk yield; but the number of animals used was hardly sufficient to make the tests conclusive.

The Absolute Necessity of a Good Bull.

Breeders should first satisfy themselves on what it is that their animals mostly lack, either of test or milking capacity, and then keep their eyes open for a bull, of either their own or some one else's breeding, which transmits the character. Failing this class of animal, one should use a bull which, on his breeding, can be presumed to be carrying the character, and try him out with decent cows by keeping both the dam's and heifer's records. If the heifers show an improvement, prize the sire accordingly—even to "far above rubies"; but if his heifers are no good, discard him immediately, and stop his mischief before it has become really serious. Assess the heifers' merits according to their money value as producers and potential mothers of producers, and not by how they comply with a fancy scheme of farm decoration. If the heifers are a success, judged on these lines, it would then be fortunate

for the owner, if the sire happened to be a product of close mating, for the quality of the heifers is far more likely to be stable. For this reason, in-breeding might well exterminate a whole stud as long as the process produced one superbly prepotent animal. In the hands of the right man, one such bull alone could restore far greater glory from the ashes.

The trouble is, men do not really know their bulls. They chop about so much in the sires they use that every one else also is prevented from knowing. It would be good if breeders would keep to one bull till they knew his character one way or the other. It would furnish everybody with a much better basis on which to determine the relative prepotency of the dams, and nothing whatever would be lost as long as the bull's results were kept under sufficiently close herd-test observation. It would, perhaps, mean the early destruction of many perhaps shapely animals, but far greater gain in the fuller use of the rare animals which the system would discover and preserve, to say nothing of the valuable time always lost in using one bull to put on a bit of shape and another to keep in the milking character.

Feeding.

No matter what success one may attain in the direction of breeding, it will never serve to reduce the dairyman's obligations in the matter of food supply. In fact, the whole object of better animals is a better means of transforming fodder. The cows, after all, are just machinery he incidentally uses to convert what he grows into what he sells. If it cannot be increased in value by the conversion process, he had better sell the raw material (fodder) instead of troubling to manufacture it into milk or butter-fat. But if the machine is capable of output of more value than the food it takes to get it, then the more fodder put through the machine the better.

Really, then, do all milking cows require fodder? What would the average farmer think if some one, with eyes gaping in astonishment, should ask him this question? He would at once sum up the questioner as a fool. But the average farmer himself is no more superior to such a jackanapes, than our leading herd-testing owners are to the average farmer. The cow is the farmer's machine just as the printer has his machine, or the weaver, or the miller. The printing machine cannot work at a profit without paper, the weavers without wool, nor the millers without wheat. But the average farmer thinks that his machine will work as long as she gets a bite to eat, and does not actually die. He might as well put his cream separator together, light the fire, generate the steam, oil the machine up and then run it—empty. How could it pay a man to do this day after day, with not one machine but perhaps fifty?

Practically this much is done in every herd every day, whether the cows are operating on raw material or not, but the dairyman who knows his business will see that they do not run idle for want of feeding material. No living cow can stop the machinery that operates her. She must have the equivalent of at least fuel and lubricating oil all the time, whether she has any to treat for milk or not, else she will die, or at any rate will be dead for all useful purposes.

Natural pasture, upon which so many cows are made to depend, might be sufficient for the few spring months of the year, to keep a cow's milking machinery running at its full capacity, but outside that period it is a practically idle empty-running machine unless the farmer does what he was meant by nature to do, viz., harvest her bounty and put it by. This is the only part which nature herself will not do, distribute her favours throughout the whole year. She will practically always give either a sufficiency or the means of a sufficiency for every year. But it is only given at her own season. This is the first part of the farmer's art, stimulating greater growth and conserving, to equalize the distribution. But how rarely is it the farmer's habit. It involves more machinery—real mechanical apparatus this time—and this also must be of the right make and design and likewise as rarely idle as possible.

Mr. T. Harvey's heifer, "Empress of Jerseyholm."

Born 23.7.19.

Season.	Milk. lbs.	Test.	Butter Fat. lbs.
1921–22	6,890	5·81	400·43

It is no good merely lubricating them up and running them around the paddock idle like the average cow. This part of the working plant must be efficiently designed and kept usefully operating just as the living part must be.

On every farm there are mid-milking hours which give the farmer opportunity to crop and conserve. There will not then be old mother nature's superabundance at one season of the year and scarcity for the remainder, which inhibits a profitable return from even the best of cows. It is not only the lost return in butter fat, but the lower average price which the factory has to pay throughout the year through permanent staff and machinery having to be run so long at less than their full capacity. This adds to overhead charges, and it is the supplier who pays in the long run, although many are incapable of comprehending that it is so. Whatever of the deficiency in our butter fat returns is due to

improper and inadequate feeding, it is safe to say that most of it occurs by the latter. Even land worth £100 per acre has not the means in itself of giving fodder the year round. There must be an act of man.

Our herd test experience has proved that the miserable returns which have disgraced some of the dairymen in the rich Western District, and which do grave injustice to the breed which is unfortunate enough to have such unskilled owners, are due far more to the disappearance of grass than to any improper balancing of protein and carbohydrate ingredient in the ration. It is not difficult to picture how a real milking cow fares in such circumstances. For a few short months her machinery is in the same position as a cream separator fed to its full capacity and doing good profitable work for its owner; thus justifying not only the lubricating oil, but the whole preparatory labour and cost of running. It happens to be nature's season. Then the season advances, the once green grasses dry up, cast their seed and wither down as grass has been doing for untold ages, and will go on doing, "for, while the earth remaineth, summer and winter, day and night shall not cease." But the farmer, who of all men should note this, is not prepared. The milk begins to dry up with the pasture, and soon the cow, stimulated by an appetite that does not wilt, is working desperately, seeking food against time, instead of leisurely assimilating it. Then, for want of the raw material from which milk is made, her machinery is running empty. The remaining broken, dry straws no more than lubricate it. Chasing increases with scarcity. The machinery, now not even sufficiently lubricated, begins to wear away, and the fine machine, once as efficient as the best, becomes a comparative wreck. If the grass returns in due season she will survive, but an impaired instrument, incapable of the normal output for which it was designed. Repeat this disgraceful cycle year after year and we have the art of dairying as it is understood by many of its devotees, who have not yet learned the vital connexion between food supply and milk yield.

That class of farmer should be careful not to select a heavy-producing breed. Good cows in such hands are as much out of place as a watch in a baboon's, and the result, in the event, is also similar—ruination.

There can be no proper interest in breeding for production until one has first learned the fundamental part which feeding plays in the process. If there are people who hope to use or abuse this Herd Test in the hope of its bringing them the breed that will make plenty of milk from very little feed, they have chosen the wrong instrument in pure-bred cattle. The whole system of testing presupposes well-fed animals. Giving it anything else to work on is but wasting time and money. Although all the cows in the test are far removed from the extreme condition above described, the causes, which are responsible for the wide disparity between the herd totals, are identical with those which are operating for success or failure throughout the herds of the State, viz., the nature of the breeding, feeding, and handling of the animals. The difference is all contained in these three.

Three Essentials for Success.

A herd which is not well-bred, well-fed, and well-treated can never occupy any of the top positions in this herd test. There must be no lack at all. A thing has cost nothing if it pays, and all this pays. The other methods, so long and commonly practised, do not pay in these days.

The dairyman needs every pound of butter fat a twice-a-day milked fodder-eating cow is capable of giving. Let the farmer once get enough butter fat and everything else humanly possible will be added unto him. But one omission nullifies all. There are herds known to be well treated and well fed, but still in the background because the animals themselves are inherently incapable of producing. They lack the right "breeding." There are other herds containing cows of high potential capacity, and that are gently enough treated, but whose owners lack a proper appreciation of what proper feeding means. They likewise take a minor place—the fault lying in the "feeding." Then again, there are herds of proved high producers, which lack no food essential but which have nevertheless fallen behind because the handling is not such as to permit the cows to enjoy the unbroken tranquility and composure so essential to the proper functioning of the highly developed food-assimilating and

Geelong Harbour Trust's "Viola of Sparrovale."

(Born 21.1.18.)

Season.	Milk. lbs.	Test.	Butter Fat. lbs.
1920–21	7,788	4·51	351·55
1921–22	9,261	4·69	434·34

milk-secreting apparatus of the modern dairy cow. This failure is one of "treatment."

These three—breeding, feeding, and handling—constitute the dairyman's tripod, on top of which is success, but there will be no top if one leg be missing. "Breeding" includes its hand-maidens—testing and culling. Feeding embraces its accessories—cultivation, food tastes and values. Handling embodies shed design, the art of milking, and everything else that affects animal comfort and composure.

Comments on Herds in 1921-22 Test.

The top herd this year is Mr. T. Mesley's "Warenda" herd of Jerseys, and the second, Mr. J. H. Hunter's "Meadowvale" herd of the same

breed. The first herd came through with an average of 487¼ lbs. including all handicap allowances, and the latter with 448¼ lbs.

Not one essential of the three above emphasized was neglected by either owners, and dairymen generally could not do better than take a leaf out of these knowing men's book. It will be sufficient to detail a few of the factors as they apply to the results obtained in the winning herd. As for breeding, Mr. Mesley's cows are all pure Jersey, bred with the specific object of production. The cows are mainly by three different sires, viz., Skim of Dunalister (1227), Jessie's Handsome Boy (1011), and Carrie 5th's Noble of Melrose (1068); while Silver Fox and Foxy Boy are responsible for one each. None of Skim's ancestors were tested, but the acid test has been put on his stock, and they have come through proved beyond all doubt, so it can be presumed that had his forbears been tested the source of his merit would have been revealed. Skim is by Clementine 2nd's Beau (240), by Carnation's Pride, by Carnation's Fox (imp.), and his dam was Clementine 2nd (326) (imp.)—a good pedigree, made better by Skim's success.

Jessie's Handsome Boy (1011) is a Woodmason-bred bull, going back through his sire Handsome Boy III. of Melrose (710)—a bull noted for high testing heifers—to Pretty Noble (imp.) and a Wild Rover cow Handsome Girl IV. (1063), which was herself a great producer. On the maternal side Jessie's Handsome Boy is a grandson of old Jessie's Progress (3657) (whose records are worth looking at). The daughter which produced him is Jessie XI. of Melrose (3656), which had two crosses of Wild Rover, so that Wild Rover is well represented in him.

Carrie 5th's Noble of Melrose (1068) (a son of Pretty Noble, imp.) is a full brother of First Choice of Melrose (847) (see Mr. Hunter's winning herd pedigrees, September, 1921, *Journal*, and Mr. C. G. Knights' two years before).

With these bulls in mind the breeding of the cows on the maternal side may be usefully reviewed. Agnes of Warenda (527.20 lb. fat) and Meadow Sweet (403.74 lb.) are half-sisters out of Alsyke of Springhurst (a cow of good records), whose grandsire was Graceful Lad of Melrose. Agnes is by Carrie 5th's Noble (1068), and Meadow Sweet is by Jessie's Handsome Boy (1011), both of which bulls link up with Pretty Noble (4626) (imp.).

Gazelle 2nd (513.67 lb.) and La Charme (480.52 lb.), bred by Mr. Brough Smythe, are full sisters by Skim of Dunalister (1227). Their dam Gazelle (5243) (488.59 lb.) was got by a descendant of Brighton King, Silver Fox of Luscombe (1226) (a grandson of Music through her daughter Philomel) being put on his mother's half-sister, Namesake 2nd (5251) (379.95 lb.), another daughter of Music. Old Philomel (now 16 years old) has a record this year of 378.25 lb., and has been as high as 446.74 lb.

Phillis 2nd of Warenda (310.45 lb. as a heifer) is by Jessie's Handsome Boy out of Phillis of Luscombe (421.60 lb.), of Brough Smythe breeding (also a member of the present herd), which cow combines the Skim and Music blood through Phillis' dam Philomel, which was Music's daughter.

Charmian (455.72 lb.) is another Brough Smythe Cow possessing Music blood from both sides, her sire Silver Fox and her dam Harmony 2nd being Music's grandson and grand-daughter respectively.

The young cow Music of Warenda, at present in the herd, is out of Warenda (517.52 lb.), a half-sister of Charmian's, through the common dam Harmony 2nd. Music of Warenda, being by Jessie's Handsome Boy, of course goes back to Pretty Noble, Jessie's Progress, and Wild Rover.

Ragtime (482.14 lb.) combines the high testing Jessie's Handsome Boy's blood and that of Music, her mother being Pibroch (469.07 lb.), a grand-daughter of Music, by Skim.

Garenne 4th of Warenda (434.35 lb. as a heifer) comes from the famous Garenne 2nd (581.34 lb.), the top producing cow of the herd, and carries also Pretty Noble blood through her sire Jessie's Handsome Boy. The dam Garenne 2nd is a Skim of Dunalister cow from Garenne, which cow goes far back in the pedigree to old Music.

Messrs. Dickinson Brothers' "Queenie of Ashby."

Born 1.9.17.

Season.	Milk. lbs.	Test. lbs.	Butter Fat. lbs.
1919–20.	7,372	4·01	295·89
1920–21.	10,966	4·01	440·29
1921–22.	12,604	3·86	486·95

Little Queen 2nd of Warenda (369.66 lb. as a heifer) and her dam both appear in the herd results this year. The former has Jessie's Handsome Boy blood added to that of her dam Little Queen (467.63 lb.), and the latter is a Foxy Boy cow from Silver Queen 2nd, a cow whose both parents were by Dairyman. So much for the herd's breeding.

The feeding is equally thorough. A visitor to "Warenda" cannot fail to be struck immediately by the high condition of everything on the place, and with the numerous small paddocks, all designed for the maintenance of food supply over the whole year. Mr. Mesley has still a good area under the native pasture, but English grasses occur in the rotation of crops grown on the subdivided areas. Variety is planned.

not only because of the cow's appreciation of occasional changes, but also because land intensely cultivated also appreciates a change and gives practical thanks for it. One can see oats, barley, millet, maize, mangolds, swedes, soya bean, and pumpkins all growing at the one time in certain months, and, better still, the cows enjoying them also.

There is no cessation of cropping operations. Mr. Mesley recognises that there is nothing that is quite a substitute for greenness, and endeavours to have it always available, even if it is only a cabbage leaf occasionally. When the cold is excessive for the more tender crops, there are still green oats and barley or home-grown oaten-chaff to be used. Garenne 2nd was privileged to have some lucerne chaff in addition to the above-named fodders.

Concentrate is used sanely, and variety is maintained in this also. Bran, polly feed, maize, oil meal, crushed oats, linseed meal, and malt combings were the concentrates fed at one time or another throughout the year, as the yields suggested. Mr. Mesley studied the individual taste of the animals. Some cows prefer one thing and some another, and Mr. or (perhaps) Mrs. Mesley is not afraid to indulge them.

The cows never had need to make milk secretion other than a leisurely occupation. Their owner recognises that hunting for the food is his responsibility, and the cows make him the gainer. The great secret here is not so much the total quantity, as the evenness of supply at all seasons. The whole atmosphere surrounding the cows smacks of leisure and tranquility. There is no rushing; in fact the cows have almost to be pushed in and out of the shed, and are lying down contentedly ruminating before they are more than a few yards from it. No scrambling for respective bails; no horning; no dogging. Cosily rugged and with shade plantations of pines provided, the bleak wind from the coastal sand-dunes has no terrors for them.

Good clean water is always accessible in paddock-troughs, and last, but not least, the cows are always milked at regular hours, and speedily and thoroughly, yet gently withal. And this, then, is how records are made, under this herd test, and not a single feature savouring of abnormality through it all.

One thing that cannot be tolerated on this farm is an underfed animal, either while milking or dry. Like all the most successful men, Mr. Mesley would be ashamed to call himself a dairyman and have a hungry animal on his place. If a cow will not pay for full and liberal feeding Mr. Mesley would rather some one else owned her, and there is no reason why he should not. The cows are deprived of no chance, and then the test determines their fate. It is no good of men holding fast to cast-iron ideas of feeding that were formed back in the dark ages when cows were not capable of yielding more than fifty pounds of butter-fat a year, however fed. Those cows had no use for it, and the effect on them would be only that of a drug. For a man to admit to-day that his particular blood will not stand feeding, it is not very far from confessing that they do not carry the first requisite of a dairy cow. A dairy cow that will not stand feeding is little less absurd than a water spaniel that will not stand water.

It is not denied that excessive and over-rich food will sicken and perhaps, kill an animal, if persisted in, but prizes in this herd test will never be won nor will money ever be made by either sick or dying cows. In fearing to feed, people are confusing liberal feeding with

rich feeding. Heavy or liberal feeding is not likely ever to do a heavy-milking cow any harm provided the proportion of the fatty and proteid ingredients in the ration is kept within bounds. If a cow has the liver and kidneys that a good dairy cow must have, there will be no sickening through excessive quantity as long as increase of proteid ingredient is incorporated in the ration with its fitting accompaniment of roughage and carbohydrate, as represented by foods like grass (green or hay), oaten hay or chaff, maize (green or ensilage), millet, mangolds, pumpkins, swedes, chou moellier, &c. Of course, great care and close observation should be exercised in feeding oily foods like linseed meal, coconut meal, and maize oil meal, when 3 lbs. per day is being exceeded.

Review of the Year's Work.

As was anticipated by its founders, the operations of the Standard Herd Test continue to grow. It is obvious that the time is now near when the usual 64 pages of this *Journal* will be insufficient to contain the records alone. Compared with last year's number the increase in herds this year is as 87 is to 129 or 48 per cent; in total cows tested, as 832 is to 1,193, or 43 per cent.; in cows attaining the standard, as 647 is to 947, over 46 per cent., a growth which speaks well for the validity of the appeal which the test is making to the breeders to "play the game," by presenting the producing capacities of their cows for the free scrutiny of all men. This year's report completes the first decade of Departmental testing.

The following is a record of the Test's expansion, and may be accepted also as indicating the rate of pure-bred development in this State, because pure breeding and testing now advance hand in hand:—

Year.	No. of Herds.	Average Size of Herds.	Cows Completed.	Cows Certificated.	Best Herd Result (on Handicap Basis.)
1912–13	5	12·4	62	45	275·45
1913–14	16	13·6	217	156	376·94
1914–15	21	16·2	335	225	429·58
1915–16	16	14·1	225	181	403·05
1916–17	21	12·9	271	236	424·48
1917–18	30	12·1	364	337	416–57
1918–19	52	9·6	499	450	447·70
1919–20	76	9·1	695	560	439·56
1920–21	87	9·6	832	647	445·96
1921–22	129	9·2	1,193	947	487·19

The 250-lb. Class.

The position of Annual Champion Cow has been won for a second time by our old familiar, Rarity VIII. of Melrose, with a record of 647.11 lb. of fat, a fitting performance, especially after a yield last year of 503.65 lb. (her unlucky year), and 718.58 lb. the year before, when she was Annual Champion. To make it all the more creditable Rarity has calved again ten days under the twelve months from her previous calving. This fine Jersey of Mr. Hunter's is two removes from Pretty Noble (imp.) through her sire Lady Melrose 2nd's Noble. She is out of Rarity 6th of Melrose (450.77 lb. fat), a Wild Rover cow,

from Rarity 5th (429.06 lb. fat), so that she comes from no mean ancestry. Mr. Hunter has her daughter (Rarity 11th of Melrose) also, which has a second-calf yield this year of 402.61 lb., and a heifer record of 364.84 lb.

The Reserve Annual Champion prize goes to Mr. Waite's five-year-old cow Dominion Segis Fobes—the Friesian, which created so much interest when she figured so well as runner-up in the *Weekly Times* butter fat contest at the Royal Show last year (1921). She is a New Zealand bred cow ex Jessie Fobes Beets by Wooderest Jo, thus being a full sister of Dominion Wooderest Beets, the present champion Friesian bull of the North Island of her homeland. In her case Mr. Waite took whatever advantage might accrue from thrice-a-day milking, which had been made permissible in case of cows yielding sixty or more pounds of

Messrs. W. & G. Finn's "Valda's Queen of Somerville."

(Born 2.9.17.)

Season.	Milk.	Test.	Butter Fat.
	lbs.		lbs.
1921–22	9,277	5·01	464·41

milk daily till they fall to 50 lbs. As she never yielded less than this quantity daily she was milked three times a day through the whole lactation.

Though missing the two top places with his cow Garenne 2nd, Mr. Mesley has as good reason as any to be proud of this, his star performer. She has put up this year 581.34 lb. of butter fat, succeeding five previous yields made up of 282.9 (as a heifer), 371.76 (post heifer), 408.29, 407.16, and 576.80 lb. respectively, all within a period of five years and

eight months on the calendar, and four years and six months of actual milking. All six calves were normal and healthy, and the one which has come into this test as Garenne 4th of Warenda has completed her lactation this year with a record of 434.35 for a start.

There are men who say that good records in this Herd Test can be put up only by "forced" feeding, and at the same time contend that forced feeding ruins animals. They cannot have it both ways. Garenne 2nd was either forced or she was not. If forcing is essential to high yields, why did this cow not collapse before six strenuous years of testing? If she were not forced, how did she do so well? The fact is she was not forced, as her lasting proves, and further it was not necessary, as her record proves. She was heavily fed no doubt, but she has stood it, and bred on it, and altogether this proves her the very class of cow this test is in search of.

Under type and utility conditions in last Melbourne Show, Garenne 2nd won, thus getting the recognition which was her due. At the same show, when consideration of utility was not prescribed, she was dismissed early from the ring, not getting even a place; *verbum sap.*, &c.

In the next place, fourth, comes Mr. Syme's strikingly high-testing Friesian, Bolobek Aagie, a cow which combines the Colantha and Hengerveld bloods which are so much responsible for the eminent position the Friesian breed holds in America, its second homeland. Starting in the test as a heifer four years ago, Aagie has three consecutive fine records of 417.43, 512.56, and 538.53 lb. of butter fat, with average tests of 4.35, 4.05, and 4.22 respectively.

Presuming that test and milk yield are separate and distinct Mendelian characters, this test, relative to the usual Friesian cow, would appear to be a recessive, and suggests possibilities of using the cow in conjunction with the apparently dominant Dominion Segis Fobes type as the foundation of interesting experiments in breeding for test.

What must be a particularly encouraging result to Mr. Maloney, as a comparative beginner, is that of his cow, Czarina of Springhurst. Her record of 536.84 lb. puts her into fifth place this year. She is one of the right sort, and her record this year is her crowning performance out of six creditable years of testing in which she has never missed a calving. Her fat yield last year was 404.60 lb. Infanta (5396) 350 lb. fat, and Princess Defiance (4392), which yielded 415.17 lb., are full sisters. They are all by Young Defiance, a successful herd sire of Mr. J. D. Read's, from which they get Defender (imp.) blood, which so often receives a favorable advertisement when his descendants come to be tested. Their dam is Princess of Springhurst, one of Mr. Read's outstanding cows in the earlier days of herd testing, which, through her sire Graceful Lad of Melrose goes back to Royal Blue, a bull which has attracted attention by the success of his daughters in the herd of his owner, Mr. Woodmason. Princess, like her daughter Czarina, tested for six seasons, her records running between 355.28 and 414.27 lb. of fat —a fine example of durability under test.

Mr. Deverell's Brighton Cub cow, Brighton Princess of Springhurst, eleventh on the list with 508.73 lb. fat, is a daughter of Princess Defiance, as is also Banksia of Springhurst (406 lb. fat on second calf) and Dauphine of Springhurst (365 lb. fat).

The sixth place, 528.72 lb. butter fat, is occupied by Mr. A. W. Jones' eleven-year-old Jersey Jubilee 15th, a Navigator cow which we have become accustomed to see among the top-notchers.

Mr. Woodmason's Jenny Lind 10th, of famous family, is again amongst the 500 lb.-and-over band, with a record of 522.52 lb. This is another proof of blood "telling." On the side of her sire, "First Choice of Melrose" (847), she is a grand-daughter of "Pretty Noble" and Carrie 5th of Melrose. The same sire begot Beauty of Tarnpirr

The Geelong Harbour Trust's Heifer, "Boronia of Sparrovale."

(Born 24.8.19.)

Season.	Milk. lbs.	Test.	Butter Fat. lbs.
1921–22	8,824	4·53	399·76

(486 lb. fat), Lady Choice of Tarnpirr (493 lb. fat as a heifer and 474 lb. on second calf), Mistletoe 2nd of Tarnpirr (449 lb. fat when she was top heifer, and 431 lb. on second calf), Veronica of Tarnpirr (406 lb. as a heifer) and numerous other heifers which figured so prominently in the success of the Tarnpirr herd in 1919. First Choice of Melrose is a full brother of Carrie 5th's Noble (1068), the sire of this year's record-breaking heifer, Agnes of Warenda. These two full-blooded sons of Pretty Noble and Carrie 5th of Melrose, both died comparatively young—a great pity—as neither of them ever begot a bad one.

A young cow which has fulfilled her early promise is Messrs. Lyon and Kerr's Jersey, Molly of Clover Flat (by Mabel's Chief, imp.), whose record this year of 522.36 lb. puts her in eighth place. This is

a third lactation yield and follows on a preceding one of 499.07, and another of 403.81 as a heifer. The producing function is here combined with show-ring excellence of high degree.

Another animal which appeals by her beauty of type as well as real utility is the ninth-place cow, Golden Noble Duchess—one of Mr. C. D. Lloyd's imported Jerseys. Her yield this year on her sixth calf is 521.39 lb. butter fat, and she has also two previous yields of 419.22 lb. on her fourth and 415.62 on her fifth calf to her credit.

Captor's Thora, a good Jersey cow which Mr. J. Scott has recently parted with to Mr. H. Luxton at a high figure, is among this year's select, in tenth place, with a record of 520.42 lb. after two earlier records of over 400 lb. each. She is out of Thora (1424) by Captor

A Successful Sire.

Mr. W. K. Atkinson's "Havelock of Darbalara."

(372), whose dam was Capture (300) (imp.). Thora 7th (311.47 lb. fat in the heifer class this year) is a daughter.

A particularly convincing testimony to the theory of functional inheritance is the record of Mr. Mesley's cow, Gazelle 2nd, whose record of 513.67 puts her into eleventh place. She is another of Skim of Dunalister's "get," and is out of Gazelle (5243), whose numerous good records rise to one of 488.59 lb. Gazelle's dam, Namesake 2nd, now twelve years old, has just completed a record of 379.95 lb. fat. A full sister of Gazelle 2nd, viz., La Charme, has numerous good records running up to one of 480.52 lb.

The twelfth place is occupied by the top-yielder of last year, Werribee Starbright 9th, another of Mr. C. D. Lloyd's cows, which has exceeded the 500 lb. mark by eleven pounds. Her record last year, on her second calf, was 582.07 lb. This young animal is by Island's Butter King (imp.) out of Starbright 7th (2863), untested, and is a member of the numerous family of cows bearing that well-known name.

In the post-heifer class Agnes of Warenda leads, as she does also in the heifer class (both lactations ended within the year being dealt with). Her heifer record of 527.20 lb. exceeds that of the best previously leading heifer, Lady Choice of Tarnpirr, by just over 33 lb., and thus constitutes a new record for heifers in this test. She followed up this fine performance by re-calving within the twelve months, having a most severe attack of milk fever at last year's Royal Show, and completing another yield of 497.72 lb. on her second calf.

The 200-lb. Class.

Second in the post-heifer class this year, after being top heifer last year, is another Mesley cow, Ragtime of Warenda, with 482.14 lb., following her 427.24 lb. as a heifer.

The third position in this class is occupied by Valda's Queen of Somerville (464.41 lb.), bred by Mr. J. Hutchinson, and now the property of Messrs. Finn Brothers, two young breeders who have recently removed their stud to Bundoora.

Cherry 12th of Melrose, now owned by Mr. Hunter, has won fourth place with a yield of 455.98 lb. following 361.95 lb. as a heifer. She is by Handsome Boy 5th of Melrose, and thus a grand-daughter of Pretty Noble, Messrs. Dickinson Brothers' young Friesian.

Queenie of Ashby is fifth, yielding 440.29 lb. She is by Pearl's Prince of Brundee, a bull which sired other high producers in this herd.

Then comes a fine young Ayrshire, Viola of Sparrovale, belonging to the Geelong Harbor Trust (434.34 lb. fat). Viola put up 351.55 lb. last year, which then gained her ninth place in the heifer class.

A young Jersey cow which is continuing to do well is Silvermine 18th of Banyule. On her second calf she has put up 431.85 lb. after 357.89 lb. as a heifer. Vixen of Tarnpirr, owned by Mr. Hunter, has a yield of 431.27 lb., and is followed by Mr. T. Harvey's Bluebell 2nd of Jerseyholm, a young cow out of a good producer, and by Mr. Harvey's stud bull Emperor, a bull whose sire and dam were both by Pretty Noble, the dam being Empire 5th of that high-producing Melrose family.

The tenth cow in the post-heifer class is W. Kerr's young Friesian Bolobek Bella, which in a curtailed lactation of 269 days produced 418.91 lb. fat.

The 175-lb. Class.

Of the first ten heifers, four belong to Mr. Mesley, and the producing quality of their blood is referred to elsewhere. The heifer in fourth place is Mr. Harvey's Empress of Jerseyholm (400.43 lb.), also by Emperor (964) and out of Empress 2nd (4979), a Holmwood cow of great producing character (449.70 lb. this year and 491.21 lb. last year) by Audrey's Lord Twylish. The fifth place heifer, Boronia of Sparrovale, is an Ayrshire by Jamie of Sparrovale out of Flower of Sparrovale (3893), one of the best producing cows in this now well-improved herd.

In Red Polls, also, the producing capacity is a matter of the right blood. Cutty Sark, the heifer in sixth position, is by Belligerent (imp.) out of Cutty, a recognised producer in the Department's herd. Cutty's records are worth repeating, viz., 286.77 lb. (as heifer), 388.18 (second calf), 453.73, 442.72, 441.28 and 450.34 lb. It is pleasing to see a new man like Mr. Broad with a heifer in as high a place as seventh in his first year of trying. This heifer, Princess 2nd of Grangelea, has yielded 371.53 lb. fat. The next two (ninth and tenth) are the property of Messrs. Lyon and Kerr, viz., Molly 6th of Banyale (362.49 lb.) and Chorus Girl of Banyale (361.28 lb.), both Audrey's Lord Twylish heifers. The Molly family need no bush, as their records are as well known as the Herd Test itself. Chorus Girl is ex Chorus (2823), a cow which, on her sire's side, goes back to Noble of Oaklands (the sire of Pretty Noble), and on her mother's to Music, the old-time cow from which so many of Mr. Mesley's fine producers are descended. Blood connexions between high producing animals in all three classes could be pointed out almost indefinitely, but sufficient has been shown to bear out the general faith in the character's hereditary transmissibility. New herds which have been entered during the year number 31, and are as follow:—

Jersey.

Anderson, J. jr., Lyndhurst.
Atherton, W. H., Murraydale.
Batson, A. E., Buckley.
Broad, A. A., Sutton Grange.
Chirnside, P., Oakleigh.
Denis, E. A., Swanpool.
Findlay, A. W., Leitchville.
Findlay, J. R., Leitchville.
Griffiths, E. J., Kardella.
Joshua, A., Berwick.
Lawrence, P. H., Agnes.
Moore, E. J., Cowes.
Tendeson, W., Merrigum.

Friesian.

Russell, S., Tongala.
Waite, G. A., Werribee.
Wills, J., Bacchus Marsh.

Ayrshire.

Armstrong, L. F., Woodend.
Cayley, W. C., Werribee.
Clymo, R. C., Bamawm.
Cockbill, W. & J.
Cockbill & Gibbs.
Cullen, W. L., Warrion.
Goodman, R., Kilmany South.
Lees, C., Lockington.
McIvor, W., Moranding.
Munro, H. J., Casterton.
Newton C. G., Kilmany South.
Telford, J. R., Kyabram.

Shorthorn.

Morton, R. G., Bacchus Marsh.

Red Poll.

Dent, R. G., Moe.
Henderson, Dr., Wangaratta.

Owing to increasing costs it has been found necessary to raise the fees for herd testing.

The entry fees now are (*a*) for the herd, £2; (*b*) per cow, 10s.

Herd fee to be paid on entry of herd and renewed annually.

The fee per cow becomes due at beginning of every lactation.

An exception has been made for returned soldiers. Provided a returned soldier is *bonâ fide* owner he is entitled to the former fees, viz., £1 per herd and 5s. per cow for the first five years of testing.

STANDARD COW PRIZES, 1921-22.

The following prizes are offered by the Government for the year ended 30th June, 1922. The prizes will be awarded through the Royal Agricultural Society:—

1. *Grand Champion Cow*—under Herd Test Regulations.

   A grand champion prize of £100, as a trophy or cash, for maintaining the position of annual champion for three years, not necessarily in succession. (Not yet been won.)

2. *Annual Champion Cow*—under Herd Test Regulations.

   A prize of £10 to be awarded to the cow which, during a lactation period terminating within a year ending on 30th June, gives the greatest amount of butter fat under the Herd Testing Regulations of this Department.

   Won by **Rarity 8th of Melrose.** Owner, J. H. Hunter.

3. *Reserve Annual Champion*—under Herd Test Regulations.

   A prize of £5 to be awarded to the cow attaining second place, under the Herd Testing Regulations of this Department, during the year ended 30th June.

   Won by **Dominion Segis Fobes.** Owner, G. A. Waite.

   These prizes to be awarded conditionally upon the winning cow being exhibited at the next Royal Agricultural Show. In the event of the death of the winning cow prior to such Show, the owner is to exhibit his next best cow.

4. *Best Herd*—under Herd Testing Regulations.

   A prize of £20 and a second prize of £10 to be awarded to the herds giving the greatest average returns under the Herd Testing Regulations of this Department, and complying with the following conditions:—

   (1) A minimum of ten cows to complete the test during the year.
   (2) Such herd to average not less than 300 lb. of butter fat. Handicaps to be allowed on the following scale: —
      (*a*) A herd of more than 10 cows to receive a handicap per cow of an amount of butter fat equal to ½ lb. for each cow in the herd.
      (*b*) Cows entered under Regulation 11a to receive a handicap of 75 lb. of butter fat.
      (*c*) Cows entered under Regulation 11b to receive a handicap of 50 lb. of butter fat.

   The prizes to be allotted for the year ended 30th June, and the best three cows in the winning herd to be exhibited at the next Royal Agricultural Show.

   First prize won by the "Warenda" Jersey Herd; owner, **Mr. T. Mesley.**

   Second prize won by the "Meadowvale" Jersey Herd; owner, **Mr. J. H. Hunter.**

No cow may compete for any prize unless she re-calves within fifteen months from her previous calving date.

HERD AVERAGES.

Detailed Returns of the two Prize-winning Herds.

1st Mr. T. MESLEY'S "Warenda" Jersey Herd.

Cows of the Herd in their Respective Classes.		Butter Fat.	Average Fat per Cow.
		lbs.	lbs.
8 Mature Cows yielded		3,732·19	466·52
3 Second-calf Cows yielded	1,364·46 lbs.	..	454·82
Handicap of 50 lbs. each	150·00 ,,		
		1,514·46	
5 Heifers yielded	2,045·40 lbs.	..	409·08
Handicap of 75 lbs. each	375·00 ,,		
		2,420·40	
Return (without herd allowance)		7,667·05	
16 Cows in herd allowed 8 lbs. each (the ½ lb. allowance per cow) ..		128·00	
Herd total (including all handicap allowances)		7,795·05	487·19

2nd Mr. J. H. HUNTER'S "Meadow Vale" Jersey Herd.

Cows of the Herd in their Respective Classes.		Butter Fat.	Average Fat per Cow.
		lbs	lbs.
5 Mature Cows yielded		2,288·86	457·77
4 Second-calf Cows yielded	1,647·01 lbs.	..	411·75
Handicap of 50 lbs. each	200·00 ,,		
		1,847·01	
1 Heifer yielded	271·77 lbs.	..	271·77
Handicap of 75 lbs. each	75·00 ,,		
		346·77	
Herd total (including all handicap allowances)		4,482·64	448·26

Averages of the First Twenty-four Herds (over 300 lbs. Average).

Order of Merit.	Owner.	Breed.	Average Yield without any Allowance.						Herd Yield with all handicap allowances.
			Heifers.		2nd Calf.		Mature Cows.		
			No. in Class.	Average Butter Fat.	No. in Class.	Average Butter Fat.	No. in Class.	Average Butter Fat.	
				lbs.		lbs.		lbs.	lbs. fat.
1	T. Mesley	Jersey ..	5	409·08	3	454·82	8	466·52	487·19
2	J. H. Hunter ..	.. ..	1	271·77	4	411·75	5	457·77	448·26
3	T. Harvey	.. ..	2	333·60	3	394·60	8	399·46	417·83
4	W. Woodmason ..	.. ..	6	271·62	5	366·11	25	400·28	411·54
5	Finn Brothers ..	.. ..	1	162·16	1	464·41	9	401·05	401·96
6	Lyon & Kerr	.. ..	15	300·06	5	374·58	14	377·91	400·52
7	A. W. Jones	.. ..	3	309·25	4	249·38	8	427·02	391·93
8	O. J. Syme	Friesian ..	6	274·93	3	319·81	14	392·03	387·68
9	J. D. Read	Jersey ..	14	256·13	6	364·92	10	404·08	387·21
10	W. K. Atkinson ..	Shorthorn ..	2	323·22	3	340·30	9	340·11	366·17
11	A. W. Jones	Friesian ..	15	239·13	6	371·08	8	352·38	361·31

AVERAGES OF THE FIRST TWENTY-FOUR HERDS—*continued.*

Order of Merit.	Owner.	Breed.	Average Yield without any Allowance.						Herd Yield with all handicap allowances.
			Heifers.		2nd Calf.		Mature Cows.		
			No. in Class.	Average Butter Fat.	No. in Class.	Average Butter Fat.	No. in Class.	Average Butter Fat.	
				lbs.		lbs.		lbs.	lbs. fat
12	Department of Agriculture	Red Poll ..	12	251·22	6	239·30	15	355·93	349·51
13	Geelong Harbor Trust ..	Ayrshire ..	5	288·16	6	316·69	11	310·06	348·57
14	H. S. Gibson	,, ..	5	252·28	2	340·51	3	327·40	339·96
15	Flack & Sewell ..	Friesian ..	9	247·21	6	306·44	12	289·01	328·57
16	R. Ralston	Ayrshire ..	8	236·33	2	295·29	5	315·60	324·78
17	C. Bamford	,, ..	6	237·96	3	253·17	8	321·56	323·78
18	Sadler Brothers ..	,, ..	9	244·34	5	242·91	20	303·93	323·42
19	J. H. Rogers	,, ..	4	218·67	2	258·41	10	320·45	320·25
20	L. McFarlane	,, ..	4	248·40	7	243·24	7	306·71	314·18
21	W. J. Colman ..	Jersey ..	..	..	2	371·11	9	279·79	310·98
22	Mrs. Black	,, ..	2	203·49	3	254·03	7	313·59	305·37
23	Kerr Brothers ..	Shorthorn ..	4	202·57	3	224·72	14	315·51	302·54
24	Callery Brothers ..	Ayrshire ..	4	227·83	5	284·03	6	253·34	300·93

COWS IN ORDER OF MERIT.

Cows over 4 Years of Age or on Third Lactation Period—250 lbs. Standard.

Order of Merit.	Name	Owner.	Breed.	Milk.	Average Test.	Butter Fat.	Sire.
				lbs.		lbs.	
1	Rarity 8th of Melrose ..	J. Hunter ..	Jersey ..	11,613	5·57	647·11	Lady of Melrose 2nd's Noble
2	Dominion Segis Fobes ..	G. A. Waite ..	Friesian	18,895	3·26	615·81	Woodcrest Joe
3	Garenne 2nd	T. Mesley ..	Jersey ..	10,416	5·58	581·34	Skim of Dunalister
4	Bolobek Aagie Colantha	O. J. Syme ..	Friesian	12,774	4·22	538·53	Colantha Ponteac
5	Czarina of Springhurst	P. J. Maloney ..	Jersey ..	9,637	5·47	536·84	Young Defiance
6	Jubilee 15th	A. W. Jones ..	,, ..	10,235	5·17	528·72	Navigator
7	Jenny Lind 10th of Melrose	W. Woodmanson ..	Jersey ..	10,105	5·17	522·52	First Choice of Melrose
8	Molly of Clover Flat ..	Lyon & Kerr ..	,, ..	8,943	5·84	522·36	Mabel's Chief
9	Golden Noble Duchess	C. D. Lloyd ..	,, ..	8,415	6·17	521·39	Golden Fern's Noble
10	Captor's Thora ..	J. Scott	,, ..	8,583	6·06	520·42	Captor
11	Gazelle 2nd of Warenda	T. Mesley ..	,, ..	9,601	5·35	513·67	Skim of Dunalister
12	Werribee Starbright 9th	C. D. Lloyd ..	,, ..	9,243	5·53	511·44	Island Butter King
13	Brighton Princess of Springhurst	C. Deverall ..	,, ..	9,208	5·52	508·73	Brighton Cub
14	Pauline of Ashby ..	Dickinson Bros. ..	Friesian	15,255	3·33	508·25	Pearls Prince of Brundee
15	Coringa	Department of Agriculture	Friesian	13,923	3·58	498·99	Woodcrest Joe
16	Pearl of Riverside ..	J. H. Rogers ..	Ayrshire	10,794	4·56	492·35	Glen Elgin's Elite
17	First Choice of Hillcrest	Leongatha High School	Jersey ..	8,816	5·57	490·98	Black Prince
18	Beauty of Tarnpirr ..	A. W. Jones ..	,, ..	7,647	6·36	486·27	First Choice of Melrose
19	Thana of Somerville ..	Finn Bros. ..	,, ..	8,762	5·54	485·70	Annette's 2nd Twylish of Kingsvale
20	Ringtail of Tarnpirr ..	J. Hunter ..	,, ..	8,973	5·39	483·37	Sport
21	La Charme	T. Mesley ..	,, ..	8,823	5·45	480·52	Skim of Dunalister

COWS OVER 4 YEARS OF AGE OR ON THIRD LACTATION PERIOD—250 LBS. STANDARD—*continued*

Order of Merit.	Name.	Owner.	Breed.	Milk.	Average Test.	Butter Fat.	Sire.
				lbs.		lbs.	
22	Trixie of Tarnpirr ..	Finn Bros. ..	Jersey ..	7,771	6·17	479·62	Morocco's Carnation Fox
23	Queen of Friesland Park	O. J. Syme ..	Friesian	15,297	3·12	476·80	Colantha Sir Winana
24	Wattle of Sprinhgurst ..	P. J. Maloney ..	Jersey ..	9,619	4·95	476·33	Brighton Cub
25	Beauty 4th of Somerville	J. Hutchinson ..	„ ..	10,018	4·74	474·85	Annette's 2nd Twylish of Kingsvale
26	Rarity 10th of Melrose	W. Woodmason ..	„ ..	7,279	6·51	473·80	Handsome Boy 5th of Melrose
27	Freezia of Springhurst ..	J. D. Read ..	„ ..	8,578	5·47	469·62	Young Defiance
28	Pibroch	T. Mesley ..	„ ..	8,988	5·22	469·07	Skim of Dunalister
29	Graceful Duchess 14th of Melrose	W. Woodmason ..	„ ..	7,154	6·47	462·71	Handsome Boy 5th of Melrose
30	Our Choice of Tarnpirr	P. J. Maloney ..	„ ..	7,259	6·37	462·31	First Choice of Melrose
31	Princess Royal of Springhurst	Finn Bros. ..	„ ..	8,592	5·35	460·70	Young Defiance
32	Graceful Duchess 11th (C) of Melrose	W. Woodmason ..	„ ..	7,454	6·16	459·54	Mystery's Son of Melrose
33	Cloudy of Somerville ..	H. Luxton ..	„ ..	8,290	5·54	458·99	Annette's 2nd Twylish of Kingsvale
34	Birdseye	Department of Agriculture	Red Poll	9,028	5·08	458·62	Tabacum
35	Mermaid 4th of Melrose	A. W. Jones ..	Jersey ..	7,563	6·05	457·91	Handsome Boy 5th of Melrose
36	Trefoil of Springhurst ..	J. D. Read ..	„ ..	8,062	5·66	456·48	Young Defiance
37	Charmain	T. Mesley ..	„ ..	9,537	4·78	455·72	Silver Fox
38	Mona of Hillcrest ..	Leongatha High School	„ ..	10,610	4·31	455·42	Black Prince
39	Nightshade of Springhurst	J. D. Reid ..	„ ..	9,087	5·00	454·51	Young Defiance
40	Daisy of Bundara ..	J. H. Rogers ..	Ayrshire	10,612	4·28	454·09	Brown Prince of Bundara
41	Nictitana	Department of Agriculture	Red Poll	9,639	4·70	452·63	Nicotine
42	Violation	Department of Agriculture	„ ..	11,068	4·07	450·36	Belligerent
43	Cutty	Department of Agriculture	„ ..	10,599	4·25	450·31	Nicotine
44	Empress 2nd of Holmwood	T. Harvey ..	Jersey ..	8,067	5·57	449·70	Audrey's Lord Twylish
45	Hyacinth	Department of Agriculture	Friesian	11,287	3·97	447·82	Oak de Kol's 2nd Homestead Fobes
46	Lady Elector 3rd of Melrose	W. Woodmason ..	Jersey ..	7,570	5·89	446·13	Pretty Noble
47	Morven Pearl 8th ..	Kerr Bros. ..	Shorthorn	11,797	3·78	445·75	Manor York Rose 1st
48	Duchess of Friesland Park	O. J. Syme ..	Friesian	12,302	3·62	445·52	King of Domino's
49	Morven Queenie 8th ..	Kerr Bros. ..	Shorthorn	11,581	3·82	442·12	Manor York Rose 1st
50	Quality 6th of Melrose	W. Woodmason ..	Jersey ..	9,415	4·70	441·61	Royal Blue
51	Fuchsia 13th of Melrose	A. W. Jones ..	„ ..	7,672	5·72	439·13	Lady of Melrose 2nd's Noble
52	Princess Royal ..	A. W. Jones ..	Friesian	12,512	3·47	435·19	Pearls Prince of Brundee
53	Crocus of Springhurst ..	J. D. Read ..	Jersey ..	8,225	5·28	434·55	Young Defiance
54	Hawthorn 7th of Banyule	Lyon & Kerr ..	„ ..	7,996	5·43	434·29	Mabel's Chief
55	Little Queen	T. Mesley ..	„ ..	8,492	5·08	432·02	Foxy Boy
56	Rose of Sparrovale ..	Geelong Harbor Trust	Ayrshire	9,508	4·55	430·90	Scottish King of Gowrie Park
57	Lady Marge of Jerseyholm	T. Harvey ..	Jersey ..	7,263	5·93	430·42	Sweet Fox 2nd
58	Daphne 4th	D. C. Miller ..	„ ..	7,292	5·90	429·04	Lotina's Noble of Oaklands
59	Mates 6th of Melrose ..	J. Hunter ..	„ ..	9,591	4·44	425·52	Sunshine of Melrose
60	Lilac of Tarnpirr ..	A. W. Jones ..	„ ..	7,750	5·47	423·82	Ilford
61	Vanilla 11th of Melrose	W. Woodmason ..	„ ..	7,207	5·88	423·60	Handsome Boy 5th of Melrose
62	Phyllis of Luscombe ..	T. Mesley ..	„ ..	9,244	4·56	421·60	Skim of Dunalister
63	Flower 6th of Melrose ..	W. Woodmason ..	„ ..	8,122	5·17	420·08	Royal Blue
64	Bolobek Jean ..	O. J. Syme ..	Friesian	11,621	3·61	419·23	Indulge Johanna Lad
65	Holland Lass 2nd of Berry	Flack & Sewell ..	„ ..	11,516	3·64	418·97	Sultan La Polka
66	Silvermine 16th of Banyule	Finn Bros. ..	Jersey ..	7,241	5·64	418·40	Mabel's Chief
67	Kyora Pansy 7th ..	F. Bidgood ..	„ ..	8,676	4·81	417·63	Young Defiance 2nd
68	Defender's Favourite of Boorene	A. A. Broad ..	„ ..	7,643	5·46	417·56	Fox's Nonpariel
69	Morocco	Department of Agriculture	Red Poll	11,920	3·50	417·43	Ganymede
70	Jenny Lind 9th of Melrose	W. Woodmason ..	Jersey ..	6,986	5·97	417·27	Pretty Noble
71	Phyllis of Ashby ..	Dickinson Bros. ..	Friesian	11,773	3·53	417·11	Pearls Prince of Brundee
72	Jonquil of Springhurst	J. D. Read ..	Jersey ..	6,949	5·99	416·25	Attraction of Springhurst
73	Dairymaid of Ben Kell	R. Ralston ..	Aryshire	9,403	4·43	416·13	Melville Duke
74	Netherland Jessie Inka	J. T. Tweddle ..	Friesian	11,584	3·58	415·70	Netherland Prince
75	Domino Hergenveld Belle	O. J. Syme ..	„ ..	11,448	3·63	415·09	King of Domino's

COWS OVER 4 YEARS OF AGE OR ON THIRD LACTATION PERIOD—250 LBS. STANDARD—*continued.*

Order of Merit.	Name.	Owner.	Breed.	Milk.	Average Test.	Butter Fat.	Sire.
				lbs.		lbs.	
76	Graceful Duchess 11th of Melrose No. 2	W. Woodmason ..	Jersey ..	6,728	6·17	415·07	Pretty Noble
77	Miss Muller 2nd of Berry	Flack & Sewell ..	Friesian	11,439	3·63	415·03	Sultan La Polka
78	Camellia of Springhurst	Mrs. I. Beard ..	Jersey ..	6,893	6·09	411·84	Investigator of Melrose
79	Kirsty 6th of Jerseyholm	T. Harvey ..	„ ..	6,580	6·14	413·71	Venture's Hero
80	Chevy 8th of Melrose ..	W. Woodmason ..	„ ..	7,075	5·84	413·70	Pretty Noble
81	Sparkle 2nd of Jerseyholm	T. Harvey ..	„ ..	6,550	6·1o	413·6o	Venture's Hero
82	Bolobek Dolly Grey ..	O. J. Syme ..	Friesian	11,041	3·74	413·28	Rhoda Prince of Rubicon
83	Gentle of Evergreen ..	H. S. Gibson ..	Ayrshire	10,065	4·09	411·64	Duke of Wethersdane
84	Werribee Northwood Madeira 6th	C. D. Lloyd ..	Jersey ..	6,753	6·09	411·57	Northwood King
85	Hawthorn 6th of Banyule	Lyon and Kerr ..	„ ..	8,018	5·13	411·35	Mabel's Chief
86	Blossom 4th of Melrose	W. Woodmason ..	„ ..	7,611	5·40	411·15	Pretty Noble
87	Kirsty 7th of Jerseyholm	T. Harvey ..	„ ..	6,416	6·40	410·63	Venture's Hero
88	Pidgeon of Kameruka	Mrs. Alston Estate	„ ..	7,028	5·85	409·46	Silver King
89	Laura 9th of Melrose ..	W. Woodmason ..	„ ..	6,532	6·22	409·24	Pretty Noble
90	Lady Grey 8th of St. Albans	A. W. Jones ..	„ ..	8,710	4·70	409·13	Navigator
91	Tonga	Department of Agriculture	Red Poll	10,066	4·06	408·44	Honingham Archbishop
92	Soprano 2nd of Banyule	Lyon & Kerr ..	Jersey ..	7,320	5·58	408·17	Mabel's Chief
93	Silvermine 15th of Banyule	Finn Bros. ..	„ ..	8,754	4·64	406·30	Mabel's Chief
94	Blanche Rose 10th ..	W. K. Atkinson ..	Shorthorn	10,323	3·66	404·69	Popular Vale Prince 9th
95	Dot of Golden Vein ..	W. J. McKernan ..	Ayrshire	8,325	4·85	404·17	Earnie of Willowvale
96	Dominion Lulu 2nd ..	Department of Agriculture	Friesian	12,847	3·1o	404·08	Woodcrest Joe
97	Molly 4th of Banyule ..	Lyon and Kerr ..	Jersey	8,176	4·94	403·62	Starbright's Lord Twylish
98	Milkmaid 37th ..	Lyon and Kerr ..	„ ..	7,771	5·17	401·86	Brignton Prince
99	Balsam of Springhurst	P. J. Maloney ..	„ ..	7,622	5·25	400·11	Young Defiance
100	Belle Corona	Department of Agriculture	Friesian	11,450	3·49	399·98	Oak de Kol Homestead Fobes
101	Belladonna of Springhurst	J. D. Read ..	Jersey ..	8,148	4·90	399·08	Attraction of Springhurst
102	Golden Fern of Glen Iris	C. D. Lloyd ..	„ ..	6,343	6·20	398·89	Mabel's Chief
103	Jessie 20th of Melrose ..	W. Woodmason ..	„ ..	6,351	6·25	397·02	Handsome Boy 5th of Melrose
104	Fuchsia 12th of Melrose	C. J. Reid ..	„ ..	8,046	4·93	396·64	Pearl's Son of Melrose
105	Maitland's Floss ..	A. W. Findlay ..	„ ..	7,834	4·99	394·28	Magnet's Maitland
106	Vanity of Warrock ..	Cockbill and Gibbs	Ayrshire	8,908	4·63	393·86	Alice's Jamie of Oakbank
107	Banksia of Springhurst	Mrs. I. Beard ..	Jersey	6,421	6·13	393·38	Bulwark
108	Flower of Hyde Park ..	J. R. Telford ..	Ayrshire	8,653	4.54	392·94	Ventry of Seafield
109	My Hope of Kameruka	Mrs. E. Sims ..	Jersey	6,732	5·83	392·48	Twylish's Pride
110	Waverly Lass 3rd of Melrose	W. Woodmason ..	„ ..	6,082	6·45	392·21	Handsome Boy 5th of Melrose
111	Briar	Department of Agriculture	Red Poll	9,053	4·32	391·28	Nicotine
112	May Queen 2nd ..	A. W. Jones ..	Friesian	9,994	3·91	390·70	Annette's Prince
113	Roan Daisy 18th ..	W. K. Atkinson ..	Shorthorn	9,085	4·27	387·99	Popular Vale Prince 9th
114	Noorat Marguerite ..	Mrs. A. Black ..	Jersey ..	8,328	4·66	387·95	Obelisk
115	Jubilee Azalia Winks ..	Miss B. Reid ..	„ ..	6,852	5·65	387·34	Goddington Winks 6th
116	Escape of Murndale ..	Finn Bros. ..	„ ..	7,609	5·09	387·21	Canary's Lad 13th
117	Tiny of Tarnpirr ..	J. Hunter ..	„ ..	6,661	5·81	387·15	Morocco's Carnation Fox
118	Blanche Rose 9th ..	W. K. Atkinson ..	Shorthorn	10,323	3·74	387·08	Poplar Vale Prince 9th
119	Lady Grey 1st of St. Albans	A. W. Jones ..	Jersey ..	6,147	6·26	384·72	Garanties Antimony
120	Harp	Lyon and Kerr ..	„ ..	7,382	5·21	384·56	Noble Lord
121	Alice	Leongatha High School	„ ..	6,286	6·11	383·95	Empire 4th's Son of Melrose
122	Gingerbread	C. D. Lloyd ..	„ ..	6,922	5·55	383·83	Mabel's Chief
123	Rosella 2nd of Kingsvale	R. H. Maher ..	„ ..	7,429	5·16	383·39	Canary's Lad 8th
124	Anithra of Gowrie Park	D. F. Griffiths ..	Ayrshire	8,747	4·38	383·00	Heather Jock 2nd
125	Aspasia of Banyule ..	G. Vallance ..	„ ..	8,975	4·25	381·53	Highcourt of Banyule
126	Edith 6th of Melrose ..	W. Woodmason ..	Jersey ..	6,278	6·08	381·39	Handsome Boy 5th of Melrose
127	Audrey of Somerville ..	H. Luxton ..	„ ..	7,670	4·96	380·51	Annette's 2nd Twylish of Kingsvale
128	Bluebell of Warrook ..	H. J. Munro ..	Ayrshire	9,639	3·94	380·19	Alice's Jamie of Oakbank
129	Fox's Clementine 2nd ..	F. Bidgood ..	Jersey ..	6,999	5·43	379·91	Carnation's Fox
130	Bolobek Amabel ..	O. J. Syme ..	Friesian	9,397	4·04	379·55	Indulge Johanna Lad
131	Oatlands Polly ..	J. Thorburn ..	Ayrshire	8,326	4·55	378·97	Captain Tasman
132	Scotia	Mrs. M. E. Carroll	Red Poll	9,996	3·79	378·92	Nicotine
133	Bolobek Rhoda ..	O. J. Syme ..	Friesian	10,517	3·61	378·72	Rhoda's Prince of Rubicon
134	Philomel	T. Mesley ..	Jersey ..	7,501	5·04	378·25	Falcon
135	Bolobek Rose	A. W. Jones ..	Friesian	10,132	3·73	378·05	Colantha Ponteac
136	Lucy of Kingsvale ..	J. Anderson, Jnr. ..	Jersey ..	6,437	5·86	376·96	Lucy's Noble of Oaklands

COWS OVER 4 YEARS OF AGE OR ON THIRD LACTATION PERIOD—250 LBS. STANDARD—*continued*.

Order of Merit.	Name.	Owner.	Breed.	Milk.	Average Test.	Butter Fat.	Sire.
				lbs.		lbs.	
137	Silvermine 14th of Banyule	Lyon and Kerr ..	Jersey ..	8,661	4·34	375·69	Mabel's Chief
138	Seaweed of Springhurst	Finn Bros. ..	,, ..	7,074	5·28	374·61	Investigator of Melrose
139	Dominion Homestead Maggie	Flack and Sewell ..	Friesian	11,442	3·25	373·25	Longbeach Primrose League
140	Daisy 6th of Jerseyholm	T. Harvey ..	Jersey ..	6,709	5·56	372·74	Emperor
141	Mowbray Lass of Kyle 2nd	C. Lees	Ayrshire	9,418	3·95	371·55	Mowbray Gordon
142	Princess Ena	O. J. Syme ..	Friesian	10,619	3·50	371·09	Duplicate Posch
143	Mystery's 14th Beauty of Lesterfield	A. W. Findlay ..	Jersey ..	7,360	5·02	369·18	Magnet's Maitland
144	Nanette 2nd of Warenda	Mrs. I. Beard ..	,, ..	5,605	6·55	367·29	Skim of Dunalister
145	Jessie 12th of Melrose ..	W. Woodmason ..	,, ..	6,336	5·79	366·94	Pretty Noble
146	Morven Duchess 13th ..	Kerr Bros. ..	Shorthorn	9,197	3·98	366·29	Charming Duke 27th
147	Clover of Springhurst ..	J. D. Read ..	Jersey ..	6,605	5·54	366·14	Brighton Cub
148	Dauphine of Springhurst	J. D. Read ..	,, ..	5,528	6·60	365·12	Investigator of Melrose
149	Duplicate Posch Maud	O. J. Syme ..	Friesian	10,886	3·35	364·57	Duplicate Posch
150	Babe of Medburn Grove	C. Bamford ..	Ayrshire	9,118	3·99	363·34	Leo of Gleneira
151	Trissie of Wethersdane..	J. R. Telford ..	,, ..	8,096	4·49	363·18	His Majesty of Wethersdane
152	Graceful Duchess 17th of Melrose	W. Woodmason ..	Jersey ..	5,428	6·68	362·86	Handsome Boy 5th of Melrose
153	Lady Elector 2nd of of Melrose	W. Woodmason ..	,, ..	5,989	6·02	360·80	Pretty Noble
154	Rosebud of Grangelea ..	A. A. Broad ..	,, ..	7,756	4·65	360·66	Kalimna's Fox
155	Cora 2nd of Havilah ..	J. Scott	,, ..	6,431	5·61	360·61	Silver Belle's Golden Lad
156	Graceful Duchess 18th of Melrose	W. Woodmason ..	,, ..	5,540	6·50	360·34	Handsome Boy 5th of Melrose
157	Good News 2nd of Roxburgh	T. Douglas ..	Ayrshire	8,338	4·32	360·27	Jinney's Pride
158	Pansy of Colac ..	C. Falkenberg ..	Jersey ..	7,714	4·67	360·24	Handsome Progress
159	Meadow Sweet of Sparrovale	Geelong Harbor Trust	Ayrshire	7,416	4·86	360·23	Jock of Sparrovale
160	Morven Pansy 7th ..	Kerr Bros. ..	Shorthorn	8,923	4·04	360·12	Manor York Rose 1st
161	Lady Louie of View Point	Sadler Bros ..	Ayrshire	9,460	3·79	358·84	Jimmie of View Point
162	Princess of Colac ..	C. Falkenberg ..	Jersey ..	6,430	5·58	358·11	Irrewarra Duke
163	Capture	W. J. Colman ..	,, ..	8,021	4·45	357·28	Maids Spark
164	Blanche Rose 9th ..	W. K. Atkinson ..	Shorthorn	10,305	3·46	357·07	Poplar Vale Prince 9th
165	Bluebell of Jerseyholm..	T. Harvey ..	Jersey ..	5,925	6·02	356·85	Venture's Hero
166	Daffodil	T. H. Payne ..	Red Poll	7,342	4·86	356·66	Cubata
167	Get 2nd of Kilmarnock	Sadler Bros. ..	Ayrshire	8,673	4·23	356·58	Blooming Boy of Gowrie Park
168	Bolobek Bess	A. W. Jones ..	Friesian	8,814	4·01	356·34	Rhoda's Prince of Rubicon
169	Jessie 15th of Melrose ..	W. Woodmason ..	Jersey ..	5,725	6·21	355·74	Pretty Noble
170	Lucy of Staghorn ..	F. Bidgood ..	,, ..	7,096	5·01	355·71	Favourite's Noble of Kyora
171	Starlight of Wethersdane	C. Bamford ..	Ayrshire	9,012	3·94	355·23	Glen Elgin's Combine
172	Nimitabel of Kameruka	J. Trevaskis ..	Jersey ..	6,787	4·62	355·17	Silver King
173	Beryl of Gleneira ..	L. McFarlane ..	Ayrshire	8,905	3·98	355·08	Majestic of Oakbank
174	Norah's Pearl.. ..	A. W. Jones ..	Friesian	9,730	3·64	354·35	Pearl's Prince of Brundee
175	Surprise	Leongatha High School	Jersey ..	6,029	5·87	353·92	Prince's Glory
176	Bolobek Isabella ..	O. J. Syme ..	Friesian	10,721	3·30	353·44	Indulge Johanna Lad
177	Monas Pride of Woorayl	Leongatha High School	Jersey ..	5,890	5·99	352·52	Prince's Glory
178	Graceful Countess of Lesterfield	P. Chirnside ..	,, ..	5,851	6·01	351·50	Handsome Boy 3rd of Melrose
179	Brookland Maid ..	A. W. Jones ..	Friesian	8,897	3·94	350·84	Woodcrest Netherlana Pietji
180	Lady of Sunnybrook ..	A. E. Haughton ..	Jersey ..	7,104	4·92	350·01	May Boy 3rd of Banyule
181	Morven Duchess 15th ..	Kerr Bros. ..	Shorthorn	9,337	3·75	349·68	Manor York Rose 10th
182	Sweet Voilet of Seafield	A. Kirbey ..	Ayrshire	7,951	4·41	349·54	Philosopher of Glengowrie
183	Ettie 5th of Banyule ..	Lyon and Kerr ..	Jersey ..	7,036	4·97	349·43	Mabel's Chief
184	Rosleaf of View Point	J. W. Cochrane ..	Ayrshire	8,353	4·18	349·21	Hector of Mapleton
185	Mode of Fernhill ..	H. D. W. Canobio ..	,, ..	8,507	4·10	349·19	Glen Elgin's Ben
186	Lucerne of Springhurst	J. D. Read ..	Jersey ..	6,767	5·15	348·99	Young Defiance
187	Lesbia of Yalart ..	Sadler Bros. ..	Ayrshire	8,412	4·15	348·86	Tribune of Gleneira
188	Kirsty 5th	T. Harvey ..	Jersey ..	7,024	4·96	348·04	Sweet Fox
189	Dainty Maid of Holmwood	Lyon and Kerr ..	,, ..	6,603	5·59	346·79	Audrey's Lord Twylish
190	Epaulette	Department of Agriculture	Red Poll	7,795	4·45	346·76	Belligerent
191	Noorat Grey Girl ..	Mrs. A. Black ..	Jersey ..	6,724	5·15	346·21	Obelisk
192	Peerless 13th of Melrose	J. Hunter ..	,, ..	6,956	4·98	345·73	Handsome Boy 5th of Melrose
193	Pearl of Riverside ..	J. H. Rogers ..	Ayrshire	9,057	3·81	345·59	Glen Elgin's Elete
194	Pearl of Hillcrest ..	Mrs. E. M. Lennie	Jersey ..	7,360	4·69	345·05	Noble of Balwyn
195	Pearl 5th of Holmwood	Lyon and Kerr ..	,, ..	7,452	4·63	344·93	Audrey's Lord Twylish
196	Roan Daisy 18th ..	W. K. Atkinson ..	Shorthorn	8,749	3·94	344·75	Poplar Vale Prince 9th
197	Moline of La Motte ..	S. A. Johnson ..	,, ..	6,940	4·94	343·96	Captain Tasman
198	Maitland's Petal ..	J. Scott	Jersey ..	6,319	5·44	343·44	Navigator

COWS OVER 4 YEARS OF AGE OR ON THIRD LACTATION PERIOD—250 LBS. STANDARD—*continued.*

Order of Merit.	Name.	Owner.	Breed.	Milk.	Average Test.	Butter Fat.	Sire.
				lbs.		lbs.	
199	Cherry 5th	W. K. Atkinson ..	Shorthorn	8,595	3·99	343·13	White Clinker
200	Iris	Department of Agriculture	Red Poll	8,008	4·28	342·67	Nicotine
201	Gladness 2nd of Struan Park	D. F. Griffiths ..	Aryshire	8,475	4·04	342·08	Bonnie King of Gowrie Park
202	Bercham of Berry ..	Flack and Sewell ..	Friesian	9,448	3·61	341·36	Obbee 2nd
203	Daisy 7th of Melrose ..	W. Woodmason ..	Jersey ..	6,417	5·31	341·01	Lady of Melrose 2nd's Noble
204	Phœbæ of Ashby ..	Dickinson Bros. ..	Friesian	9,700	3·51	340·80	Pearl's Prince of Brundee
205	Noorat Beauty ..	Mrs. A. Black ..	Jersey ..	7,150	4·76	340·03	Obelisk
206	Royal Sun Ray ..	Mrs. E. Sims ..	,, ..	6,828	4·97	339·17	Peerless' Lord Twylish
207	Melba	A. W. Jones ..	Friesian	8,579	3·95	339·00	Pearl's Prince of Brundee
208	Barbara	J. Benallack ..	Ayrshire	7,520	4·50	338·36	Dunoon of Seafield
209	Bolobek May ..	O. J. Syme ..	Friesian	10,073	3·36	338·24	Indulge Johanna Lad
210	Graceful Duchess 10th of Melrose	W. Woodmason ..	Jersey ..	5,416	6·23	337·67	Jessie's 4th Son of Melrose
211	Fairlie of Burnbrae ..	Sadler Bros. ..	Ayrshire	7,559	4·29	337·51	Brae Loch
212	Sylvian Maid of Glenalvie	L. McFarlane ..	,, ..	9,150	3·67	336·13	Stately of Gleneira
213	Nora 3rd of Gleneira ..	J. A. Lang ..	,, ..	7,991	4·20	335·26	Jock of Gowan Bank
214	Lady Burnbrae ..	Sadler Bros. ..	,, ..	8,211	4·08	335·21	Prince Charlie of Lake View
215	Dominion Proud Lassie	Department of Agriculture	Friesian	10,531	3·17	334·22	Woodcrest Joe
216	Snowflake of Springhurst	W. H. Waycott ..	Jersey ..	6,392	5·23	334·01	Brighton Cub
217	Flower of Sparrovale ..	Geelong Harbor Trust	Ayrshire	7,668	4·34	332·66	Glen Elgin's Rover
218	Ettie of Banyule ..	G. Vallance ..	Ayrshire	7,410	4·49	332·41	The Lad of Banyule
219	Daisy 3rd of Kingsvale	F. W. Beischer ..	Jersey ..	7,150	4·64	331·94	Viola's Lad 2nd of Kingsvale
220	Lantana of Springhurst	J. L. & E. J. Henderson	,, ..	5,569	5·96	331·94	Fisher of Springhurst
221	Madge of Medburn Grove	C. Bamford ..	Ayrshire	8,802	3·77	331·76	Leo of Gleneira
222	Morven Queenie 9th ..	W. K. Atkinson ..	Shorthorn	9,092	3·65	331·66	Manor York Rose 1st
223	Creamy of Lesterfield ..	P. Cairnside ..	Jersey ..	7,290	4·54	331·23	Handsome Boy 3rd
224	Begum of Springhurst	J. D. Read ..	,, ..	5,778	5·71	330·11	Investigator of Melrose
225	Pearl 5th	W. J. Colman ..	,, ..	6,087	5·41	329·43	Lady Melrose 2nd's Noble
226	Buttercup of Bonshaw	P. J. Maloney ..	,, ..	5,740	5·74	329·35	Pilot of Tarnpirr
227	The Gift of Hillcrest ..	Leongatha High School	,, ..	7,013	4·68	328·01	Duke of Hillcrest
228	Lily of Ferntree Vale ..	H. Luxton ..	,, ..	6,181	5·29	327·82	Audrey's Lord Twylish
229	Monas Pearl	Mrs. A. Black ..	,, ..	6,920	4·74	327·70	Prince Nita
230	Moonbeam of Medburn Grove	C. Bamford ..	Ayrshire	7,911	4·14	327·28	Leo of Gleneira
231	Daphne 3rd	D. C. Miller ..	Jersey ..	6,850	4·77	326·80	May's Larkspur's Lord Twylish
232	Bud of Banyule ..	G. Vallance ..	Ayrshire	7,973	4·10	326·78	Melville Duke
233	Lenore of Leclefechan ..	Sadler Bros ..	,, ..	8,187	3·99	326·04	Adam of Coolangatta
234	Diana 6th of Braelands	F. G. Sadler ..	Shorthorn	8,222	3·96	325·84	43rd Earl of Pentland
235	Pearl of Ben Kell ..	R. Ralston ..	Ayrshire	7,975	4·08	325·56	Melville Duke
236	Rose Royal of Langley Park	Callery Bros. ..	,, ..	7,654	4·25	325·30	Royalty of Rythdale
237	Ada of Wethersdane ..	Sadler Bros. ..	,, ..	8,147	3·99	324·96	His Majesty of Wethersdane
238	Gratis	T. H. Payne ..	Red Poll	7,994	4·06	324·76	Acton Ajax
239	Nicety of Yalart ..	Sadler Bros ..	Ayrshire	7,566	4·29	324·30	Magician of Gleneira
240	Tulip 4th of Bonshaw ..	Mrs. E. M Lennie..	Jersey ..	6,357	5·10	323·96	The Pilot of Tarnpirr
241	Daphne of Ayrbrae ..	L. McFarlane ..	Ayrshire	6,915	4·68	323·93	Earl of Drayton
242	Gipsy Girl of Sparrovale	Geelong Harbor Trust	,, ..	6,607	4·90	323·87	Scottish King of Gowrie Park
243	Woodnymph ..	Department of Agriculture	Friesian	10,518	3·07	322·86	Woodcrest Joe
244	Pearl 2nd of Melrose ..	W. Woodmason ..	Jersey ..	5,973	5·40	322·44	Jessie's 4th Son of Melrose
245	Trixie of Colac ..	C. Falkenberg ..	,, ..	5,724	5·63	322·30	Handsome Progress
246	Jamacia	Mrs. M. E. Carroll	Red Poll	8,052	4·00	322·02	Ganymede
247	Plumstead Pip (Imp.) ..	T. H. Payne ..	,, ..	7,343	4·38	321·96	Plumstead Pearl
248	Princess of Kudala ..	W. J. Colman ..	Jersey ..	6,444	4·98	320·90	Stairbright Renard
249	Morea of Seafield ..	J. W. Cochrane ..	Ayrshire	8,595	3·73	320·87	Philosopher of Glengowrie
250	Mona of Vale Hill ..	T. Douglas ..	,, ..	7,775	4·13	320·71	Oliver's Jamie
251	Pearl 3rd of Holmwood	Lyon and Kerr ..	Jersey ..	6,292	5·09	320·06	Audrey's Lord Twylish
252	Pastime of Tarnpirr ..	L. A. Denis ..	,, ..	5,765	5·55	320·00	Sport
253	Future of Warrook ..	J. Rogers ..	Ayrshire	7,679	4·16	319·78	Alice's Jamie of Oakbank
254	Creamy 2nd of Holmwood	Miss L. Robinson ..	Jersey ..	6,495	4·90	318·53	Pearl's Prince of Holmwood
255	Petunia of Glencairn ..	N. Gange ..	Ayrshire	7,521	4·23	317·93	Peacemaker of Glencairn
256	Madge	Mrs. A. Black ..	Jersey ..	6,632	4·79	317·66	Rufus
257	Laurel of Burnbrae ..	Sadler Bros. ..	Ayrshire	8,197	3·86	316·66	Adam of Coolangatta
258	Daphne of Ayrbrae ..	L. McFarlane ..	Ayrshire	7,319	4·32	315·82	Earl of Drayton
259	Gladsome of Medburn Grove	C. Bamford ..	,, ..	8,248	3·83	315·59	Leo of Gleneira
260	Ontario	Department of Agriculture	Red Poll	8,391	3·75	315·39	Acton Dewstone

COWS OVER 4 YEARS OF AGE OR ON THIRD LACTATION PERIOD—250 LBS. STANDARD—*continued.*

Order of Merit.	Name.	Owner.	Breed.	Milk.	Average Test.	Butter Fat.	Sire.
				lbs.		lbs.	
261	Bluebell of Sparrovale..	Geelong Harbor Trust	Ayrshire	8,035	3·92	315·35	Jock o' Gowrie
262	Jean of Glengowrie ..	A. H. Schier ..	„ ..	7,939	3·97	315·01	Ada's Jamie of Glengowrie
263	Rosetta 3rd ..	F. Sadler.. ..	Shorthorn	7,582	4·15	314·97	43rd Earl of Pentland
264	Art of Springhurst ..	J. Hutchinson ..	Jersey ..	6,689	4·70	314·29	Brighton Cub
265	Satinbird of Burnbrae ..	Sadler Bros. ..	Ayrshire	7,267	4·32	314·05	Bonnie King of Gowrie Park
266	Lady Grey 5th of St. Albans	T. R. Findlay ..	Jersey ..	6,056	5·18	313·49	Sweet Fox
267	Honeysuckle of Springhurst	C. W. W. Macauley	„ ..	6,212	5·04	313·05	Young Defiance
268	Bountiful of La Motte ..	S. A. Johnson ..	Ayrshire	6,895	4·54	312·88	Lochinvar of Prior Park
269	Lady of the Valley ..	T. Douglas ..	„ ..	7,302	4·28	312·74	Pride of Yarra
270	Letty 2nd of Warrook ..	Cockbill & Gibbs ..	„ ..	7,073	4·41	312·2	Minerva's Jamie of Oakbank
271	Jessie 13th of Melrose ..	W. Woodmason ..	Jersey ..	5,223	5·98	312·13	Pretty Noble
272	Bridesmaid of Clarendoneyre	Flinn Bros. ..	„ ..	6,751	4·60	310·68	Lotina's Larkspur's Twylish
273	Maggie of Ashby ..	Dickinson Bros. ..	Friesian	8,439	3·68	310·40	Pearl's Prince of Brundee
274	Primrose 2nd of Bonshaw	Mrs. E. M. Lennie	Jersey ..	5,936	5·23	310·21	The Pilot of Tarnpirr
275	Merella 2nd of Yarra Brae	Mrs. E. M. Lennie	„ ..	5,695	5·24	308·59	Starbright Renard
276	Dominion Fayne Segis	Flack & Sewell ..	Friesian	8,971	3·54	307·56	Longbeach Primrose League
277	Lassie 4th of Clover Flat	F. Raggatt ..	Jersey ..	6,486	4·74	307·42	Prince Noreen
278	Flossie 2nd of Raith ..	Leslie & Gerrand ..	Ayrshire	7,873	3·90	306·32	Adela's Jamie of Raith
279	Holly Queen of Pentland 4th	F. Sadler.. ..	Shorthorn	7,597	3·65	305·96	Duke of Woodlands
280	Mountain Mist of Kameruka	Miss B. Reid ..	Jersey ..	6,188	4·94	305·92	Jubilee May's 2nd Prince
281	Stella of Golden Vein ..	W. McIvor ..	Ayrshire	7,729	3·95	305·53	Anither of Oakbank
282	Annette 2nd of Kingsvale	F. W. Beischer ..	Jersey ..	6,411	4·76	304·96	Victim's Defiance
283	Dominion Cora ..	Flack & Sewell ..	Friesian	8,833	3·40	304·51	Oak de Kol
284	Maid of Sparrovale ..	Geelong Harbor Trust	Ayrshire	7,312	4·15	303·20	Glen Elgin's Rover
285	Flirt of Kilmarnock ..	Sadler Bros. ..	„ ..	8,701	3·48	303·19	Tayra's Record
286	Jubilee of Somerset ..	A. E. Batson ..	Jersey ..	5,564	5·44	302·75	Discoverer
287	Roan Ada 4th ..	F. Sadler.. ..	Shortnorn	8,292	3·65	302·68	43rd Earl of Pentland
288	Jean of Belle Vue ..	H. S. Gibson ..	Ayrsnire	7,211	4·20	302·69	Dorman of Seafield
289	Ladybird of Mapleton ..	J. Rogers ..	„ ..	6,996	4·32	302·46	Hero of Rytndale
290	Last Rose of Medburn Grove	C. Bamford ..	„ ..	6,696	4·48	302·31	Leo of Gleneira
291	Bramble	Department of Agriculture ..	Red Poll	7,706	3·91	301·64	Belligerent
292	Gwendoline of Gleneira..	C. Rigby ..	Ayrshire	7,913	3·80	300·49	Majestic of Oakbank
293	Dairymaid of Warrook..	W. Henderson ..	„ ..	7,162	4·20	300·48	Alice's Jamie of Oakbank
294	Satinbird of Burnbrae ..	Sadler Bros ..	„ ..	7,401	4·06	300·30	Bonnie King of Gowrie Park
295	Dominion Grace de Kol	G. A. Waite ..	Friesian	9,060	3·14	300·25	Longbeach Primrose League
296	Verona of Warrook ..	Cockbill & Gibbs ..	Ayrsnire	7,297	4·11	299·91	Minerva's Jamie of Warrook
297	Greatness of Roxburgh	T. Douglas ..	„ ..	6,960	4·31	299·65	Glen Elgin's Grand Duke
298	Nora 7th of Avondale ..	G. Keys	„ ..	6,975	4·29	299·48	Linda's Jamie of Avondale
299	Barbara of Brundee ..	O. J. Syme ..	Friesian	9,334	3·21	299·31	Edlaglassie
300	Ibis of Gleneira ..	R. Ralston ..	Ayrsnire	6,430	4·65	299·04	Waite Prince of Gleneira
301	Fashion of Warrook ..	W. C. Greaves ..	„ ..	5,859	5·10	298·65	Minerva's Jamie of Warrook
302	Dinah of Mapleton ..	G. A. Kent ..	„ ..	6,909	4·31	298·12	Hero of Rythdale
303	Vera of Dunachton ..	R. Hall	„ ..	8,182	3·64	297·82	Alpha of Summerhill
304	Olive of Medburn Grove	C. Bamford ..	„ ..	7,453	3·99	297·71	Leo of Gleneira
305	Myrtle 2nd of Pine Grove	A. H. Schier ..	„ ..	7,119	4·18	297·71	Glen Keith of Pine Grove
306	Lilian of Willowvale ..	W. Meredith ..	„ ..	7,180	4·14	297·60	Tarbolton of Oakbank
307	Gertie of Warrook ..	W. Henderson ..	„ ..	6,241	4·76	297·30	Fashionable
308	Duchess of Sparrovale ..	Geelong Harbor Trust	„ ..	6,930	4·29	297·17	Stuart of Gowrie Park
309	Annie of Taringa ..	C. Falkenberg ..	Jersey ..	5,328	5·57	296·68	Golden Spark
310	Berry of Warrook ..	W. Henderson ..	Ayrshire	6,336	4·68	296·26	Beryl's Conservative
311	Daisy 3rd of Kingsvale	F. W. Beischer ..	Jersey ..	6,749	4·39	293·19	Viola's Lad 2nd of Kingsvale
312	Dolichus of Springhurst	C. Deverall ..	„ ..	5,895	5·02	296·07	Brighton Cub
313	Pearl of Friesland Park	O. J. Syme ..	Friesian	8,900	3·32	295·83	King of Dominos
314	Starfinch 2nd ..	Lyon & Kerr ..	Jersey ..	6,108	4·84	295·61	Combination Jack
315	Pearleen of Kilmarnock	Sadler Bros. ..	Ayrshire	7,675	3·85	295·12	Annie's Laird of Kilmarnock
316	Scottish Lass of Glenbrae	Warrnambool High School	„ ..	6,540	4·51	295·06	Warlock of Fernhill
317	Cowslip of Devon Park	J. W. Cochrane ..	„ ..	6,101	4·83	294·89	Sultan of Devon Park
318	Poley	R. G. Dent ..	„ ..	7,434	3·97	294·86	Redman
319	Laura of Warrook ..	W. Henderson ..	„ ..	7,256	4·06	294·71	Alice's Jamie of Oakbank
320	Bonnie Jean of Langley Park	Callery Bros. ..	„ ..	6,263	4·70	294·13	Bonnie's Chief of Victoria Bank
321	Defender's Queen of St. Albans	A. E. Batson ..	Jersey ..	5,973	4·90	292·79	Linden's Chief
322	Ryebread of Glen Iris ..	C. D. Lloyd ..	„ ..	5,473	5·35	292·59	Mabel's Chief
323	Amy of Golden Vain ..	J. A. Lang ..	Ayrshire	7,076	4·13	292·43	Rufus of Golden Vein
324	Cynthia of Glengowrie	Sadler Bros. ..	„ ..	7,952	3·68	292·38	Bruce of Glengowrie
325	Murmur 4th of Gleneira	F. McIver ..	„ ..	6,872	4·25	292·14	Kia Ora of Haydowns

COWS OVER 4 YEARS OF AGE OR ON THIRD LACTATION PERIOD—250 LBS. STANDARD—*continued.*

Order of Merit.	Name.	Owner.	Breed.	Milk.	Average Test.	Butter Fat.	Sire.
				lbs.		lbs.	
326	Hawthorn 5th of Banyule	Lyon & Kerr ..	Jersey	5,806	5·03	291·99	Mabel's Chief
327	Mauve Lilac	Miss B. Reid ..	„ ..	5,105	5·71	291·57	Ironmaster
328	Morven Cressider ..	Kerr Bros. ..	Shorthorn	7,338	3·97	291·57	Manor York Rose 1st
329	Lotina's Twylish of Roseneath	D. C. Miller ..	Jersey ..	5,759	5·05	290·87	Lotina's Noble of Oaklands
330	Mulberry 2nd of Gleneira	L. McFarlane ..	Ayrshire	7,611	3·82	290·85	Kia Ora of Haydowns
331	Patricia	F. G. Sadler ..	Shorthorn	6,917	4·20	290·47	Hayle Prince of Portland
332	Lady of Ecclefechan ..	Sadler Bros. ..	Ayrshire	7,024	4·14	290·45	Adam of Coolangatta
333	Morven Oxford Summerton	Kerr Bros. ..	Shorthorn	7,289	3·98	290·33	Manor York Rose 1st
334	Cloverleaf	W. J. Coleman ..	Jersey ..	6,068	4·78	290·21	May Boy of Banyule
335	Morven Duchess 14th ..	Kerr Bros. ..	Shorthorn	8,110	3·58	290·00	Charming Duke 27th
336	Blanche of Ben Kell ..	G. Vallance ..	Ayrshire	7,971	3·63	289·59	Melville Duke
337	Streak of Balvormie ..	A. H. Schier ..	„ ..	6,866	4·21	288·96	Warrior
338	Sweetheart of Tarnpirr	J. L. & E. I. Henderson	Jersey ..	5,167	5·59	288·64	Starbright's 5th Twylish
339	Gardinia of Seafield ..	G. Gange ..	Ayrshire	6,632	4·35	288·51	Philosopher of Glengowrie
340	Fuchsia of Warrook ..	Cockbill & Gibbs ..	„ ..	7,061	4·08	288·07	Alice's Jamie of Oakbank
341	Lena of Golden Vein ..	W. T. Cullen ..	„ ..	6,741	4·27	287·91	Bonnie Lad of Golden Vein
342	Peggy of Riccarton ..	W. T. Cullen ..	„ ..	6,542	4·45	287·90	White Prince of Gleneira
343	Red Pet	F. G. Sadler ..	Shorthorn	6,926	4·14	286·68	Royal Heir 7th
344	Blanchette 1st of St. Albans	A. W. Jones ..	Jersey ..	5,688	5·03	286·46	Sweet Fox
345	Science of Springhurst	Finn Bros. ..	„ ..	4,812	5·95	286·22	Brighton Cub
346	Netherlana	Department of Agriculture ..	Red Poll	7,363	3·89	286·10	Melford Prince
347	Mulberry of Ayrbrae ..	L. McFarlane ..	Ayrshire	7,556	3·79	283·10	Lancelot of Gleneira
348	Poppy of Ben Kell ..	R. Ralston ..	„ ..	6,148	4·65	283·09	Girvan of Oakbank
349	Iris 2nd of Carracoorte..	W. Henderson ..	„ ..	6,812	4·18	284·73	Victorious of Warrook
350	Woodnymph ..	Department of Agriculture	Friesian	9,834	2·81	284·52	Wooderest Joe
351	Princess of Kudala ..	W. J. Colman ..	Jersey ..	5,943	4·78	284·06	Starbright Renard
352	Betsy 2nd of Carracoorte	W. Henderson ..	Ayrshire	6,141	4·62	283·74	Fritz of Rythdale
353	Victoria Red Rose ..	Department of Agriculture	Red Poll	6,354	4·46	283·66	Red David
354	Floss 2nd of Carracoorte	W. Henderson ..	Ayrshire	7,348	3·85	283·04	Rufus of Oakbank
355	Minnie of Warrook ..	W. Henderson ..	„ ..	5,924	4·77	282·87	Alice's Jamie of Oakbank
356	Daffodil Pine Hill ..	G. Rowe ..	Jersey ..	6,359	4·45	282·68	Starbright Carnation's Fox
357	Vanilla 7th of Melrose ..	W. Woodmason ..	„ ..	5,221	5·38	281·87	Pretty Noble
358	Prudence of Gleneira ..	R. C. Clymo ..	Ayrshire	6,288	4·48	281·59	Champion of Gleneira
359	Fairy of Warrook ..	Cockbill & Gibbs ..	„ ..	5,685	4·95	281·41	Minerva's Jamie of Warrook
360	Princess Dot	G. Rowe ..	Jersey	4,533	6·21	281·31	Kyabram Milklad
361	Boronia 2nd of Pine Grove	A. H. Schier ..	Ayrshire	6,294	4·46	281·14	Glen Keith of Pine Grove
362	Prunny of Golden Vein	J. H. Rogers ..	„ ..	7,774	3·62	281·05	Anither of Oakbank
363	Marguerite of Glengowrie	A. H. Schier ..	„ ..	6,193	4·53	280·37	Orpheus of Glengowrie
364	Tarrawarra No 10 ..	G. A. Waite ..	Friesian	7,061	3·96	280·06	Tarrawarra No. 2
365	Frolic of Sparrovale ..	Geelong Harbor Trust	Ayrshire	6,766	4·14	279·99	Kemp of Glenarthur
366	Mermaid of Shannon Vale	C. Bamford ..	„ ..	6,143	4·55	279·29	Oswald of Willowvale
367	Columbine of Springhurst	Mrs. I. Beard ..	Jersey ..	4,929	5·66	279·18	Young Defiance
368	Mahonga Butterfly 32nd	R. G. Morton ..	Shorthorn	6,977	4·00	279·18	Phingask Comet
369	Tulip of Meridale ..	F. W. Beischer ..	Jersey ..	4,905	5·68	278·65	Dinah's Twylish 2nd of Kingsvale
370	Susie	R. Lidgett ..	Shorthorn	6,680	4·17	278·52	Duke of Chester
371	Retford Fawn ..	Miss B. Reid ..	Jersey ..	5,215	5·32	278·45	Cherry's Pride 2nd
372	Annette 6th of Kingsvale	A. W. Findlay ..	„ ..	5,193	5·33	277·01	Carnation's Fancy Northwood King
373	Mode of Fernhill ..	H. D. W. Canobio	Ayrshire	6,721	4·12	276·92	Glen Elgin's Ian
374	Silverine of Inverleigh ..	A. G. Schier ..	„ ..	6,590	4·19	276·36	Marker of Balvormie
375	Lady Violet	R. Hall	„ ..	7,368	3·74	275·89	Peacemaker of Oakbank
376	Bess of Gleneira ..	A. H. Schier ..	Ayrshire	6,751	4·09	275·82	Rab of Gleneira
377	Maitland's Duchess of Lesterfield	A. W. Findlay ..	Jersey ..	6,937	3·98	275·81	Carnation's Fancy Northwood King
378	Morven Pansy 8th ..	Kerr Bros. ..	Shorthorn	7,605	3·62	275·65	Charming Duke 27th
379	Pentland's Bloom 2nd ..	R. Lidgett ..	„ ..	5,978	4·61	275·53	Duke of Chester
380	Peeress of Wyuna ..	R. H. Maher ..	Jersey ..	4,542	6·07	275·51	Buccanier
381	Possum of La Motte ..	J. Thorburn ..	Ayrshire	6,235	4·42	275·38	Captain Tasman
382	Lotus Lily 2nd of Staghorn	F. Bidgood ..	Jersey ..	5,350	5·14	275·17	Favourite's Noble of Kyora
383	Argus of Raith ..	Leslie & Gerrard ..	Ayrshire	7,738	3·54	274·86	Adela's Jamie of Raith
384	Sarah of Glen Alvie ..	G. Gange ..	„ ..	6,092	4·51	274·54	Triumph of Gleneira
385	Pearleen of Kilmarnock	Sadler Bros. ..	„ ..	7,648	3·59	274·44	Annie's Laird of Kilmarnock
386	Dorah of Glencourt ..	H. J. Munro ..	„ ..	5,921	4·63	274·14	Bonnie Chief of Gowrie Park
387	Tabitha of Gleneira ..	J. A. Lang ..	Ayrshire	6,402	4·28	274·13	Lad o' Kyle
388	Canary of Lesterfield ..	P. Chirnside ..	Jersey	5,180	5·29	274·06	Lesterfield Boy
389	Nellie of La Trobe ..	Sale High School ..	Ayrshire	6,053	4·53	274·04	Adela's Jamie of Raith

COWS OVER 4 YEARS OF AGE OR ON THIRD LACTATION PERIOD—250 LBS STANDARD—*continued.*

Order of Merit.	Name.	Owner.	Breed.	Milk.	Average Test.	Butter Fat.	Sire.
				lbs.		lbs.	
390	Ada of Wethersdane ..	Sadler Bros. ..	Ayrshire	7,668	3·56	273·40	His Majesty of Wethersdane
391	Maitland's Petal 3rd ..	J. Scott	Jersey ..	5,386	5·08	273·36	Silver Belle's Golden Lad
392	Pet	J. W. Cochrane ..	Ayrshire	7,357	3·71	273·24	Carlo of Gleneira
393	Morven Daphne 10th ..	Kerr Bros. ..	Shorthorn	7,604	3·59	273·04	Manor York Rose
394	Proud Lassie of Yarra Brae	S. S. Cameron ..	Jersey ..	5,785	4·71	272·63	Laddie 10th
395	Countess of Golden Vein	W. T. Cullen ..	Ayrshire	7,343	3·71	272·36	Anither of Oakbank
396	Morven Queenie 10th ..	Kerr Bros. ..	Shorthorn	7,744	3·51	272·13	Charming Duke 27th
397	Lady Merlin of Colac ..	C. Falkenberg ..	Jersey ..	4,852	5·60	271·84	Merlin
398	Ada	R. Lidgett ..	Shorthorn	7,080	3·83	271·67	Charming Duke 27th
399	Jubilee Daffodil ..	Miss B. Reid ..	Jersey ..	5,584	4·68	271·28	Jubilee May's 2nd Prince
400	Violet's Queen of Dunachton	R. Hall	Ayrshire	7,005	3·87	271·24	Alpha of Oakvale
401	Heroine of Springvale ..	R. C. Campbell ..	Jersey ..	5,299	5·12	271·05	Jersey King
402	Goldleaf of Raith ..	Leslie & Gerrand ..	Ayrshire	6,385	4·24	270·84	Scottish King
403	Songstress of Glencourt	H. J. Munro ..	" ..	5,870	4·61	270·58	Bonnie Chief of Gowrie Park
404	Lady Mac 2nd of Gleneira	W. Henderson ..	" ..	6,698	4·04	270·47	Goldmines Majestic of Gleneira
405	Dominion Flower 2nd ..	Flack & Sewell ..	Friesian	7,684	3·52	270·42	Longbeach Primrose League
406	Rosebloom of Carracoorte	W. Henderson ..	Ayrshire	6,138	4·41	270·39	Victorious of Warrook
407	Glorious of Roxburgh ..	J. A. Lang ..	" ..	6,790	3·99	270·37	Jenny's Pride
408	Mabel of Simpson House	A. H. Schier ..	" ..	6,362	4·23	269·08	Annie's Luminous
409	Magenta 2nd of Burnside	L. F. Armstrong ..	" ..	5,615	4·79	268·92	Ventry of Seafield
410	Mayflower of Colac ..	C. Falkenberg ..	Jersey ..	4,576	5·87	268·72	Cowslip's Lad
411	Pentland's Bloom ..	R. Lidgett ..	Shorthorn	6,485	4·14	268·37	Highton Prince 3rd
412	Mabel of Simpson House	A. H. Schier ..	Ayrshire	6,259	4·28	267·98	Annie's Luminous
413	Cocky of Evergreen ..	H. S. Gibson ..	" ..	7,974	3·36	267·91	Duke of Wethersdane
414	Laurie 2nd of Roseneath	W. J. Coleman ..	Jersey ..	5,183	5·14	267·60	Dunalister's Noble
415	Primrose 2nd of Pine Grove	A. H. Schier ..	Ayrshire	6,603	4·05	267·12	Glen Keith of Pine Grove
416	Peerless of Dunachton	R. Hall	" ..	6,865	3·89	267·07	Alpha of Oakvale
417	Ivy 2nd of Wethersdane	G. Keys	" ..	6,999	3·81	266·99	Glen Elgin's Combine
418	Milkmaid of Riccarton	W. T. Cullen ..	" ..	6,437	4·14	266·42	White Prince of Gleneira
419	Beauty	R. Lidgett ..	Shorthorn	6,419	4·15	266·12	Highton Prince 3rd
420	Belle of Sparrovale ..	Geelong Harbor Trust	Ayrshire	6,070	4·38	265·68	Stuart of Gowrie Park
421	Unita of Burnside ..	J. H. Rogers ..	" ..	7,086	3·74	264·60	Zero of Rythdale
422	Dominion Queen Segis	Flack & Sewell ..	Friesian	7,916	3·22	264·46	Longbeach Primrose League
423	Lily 3rd of Holmwood	H. Luxton ..	Jersey ..	5,548	4·77	264·44	Audrey's Lord Twylish
424	Lady 2nd of Bonshaw ..	F. Trevaskis ..	" ..	5,521	4·78	264·02	Laddie 2nd of Banyule
425	Lotina's Lady ..	H. Luxton ..	" ..	5,949	4·42	262·78	Lotina's Larkspur's Twylish
426	Centague of Banyule ..	H. Perdriau ..	Ayrshire	5,979	4·36	262·45	The Lad of Banyule
427	Anthem (Imp.) ..	Miss S. L. Robinson	Jersey ..	5,338	4·90	261·49	Bright Prince
428	Buttercup of Carracoorte	W. Henderson ..	Ayrshire	6,467	4·01	261·20	Alice's Jamie of Oakbank
429	Bud 2nd of View Point	H. D. W. Canobio..	" ..	6,352	4·11	261·13	Glen Elgin's Ben
430	Beatrice of Sparrovale ..	Geelong Harbor Trust	" ..	7,125	3·63	259·49	Stuart of Gowrie Park
431	Flossie of Gleneira ..	W. Henderson ..	" ..	5,747	4·51	259·41	Triumph of Gleneira
432	Young Madeira of La Trobe	Sale High School ..	" ..	6,586	3·93	259·11	Norm of Mapleton
433	Mitre of Balvormie ..	A. H. Schier ..	" ..	5,738	4·51	258·92	Molly's Marshall of Balvormie
434	Bellona of Carracoorte	W. Henderson ..	" ..	5,949	4·37	258·66	Fritz of Rythdale
435	Pretty Polly of Glengowrie	J. H. Rogers ..	" ..	5,615	4·60	258·49	Glen Elgin's Orpheus
436	Morven Lizzie 7th ..	Kerr Bros. ..	Shorthorn	6,564	3·95	258·47	Manor York Rose
437	Wattle Blossom of Roseneath	W. J. Coleman ..	Jersey	5,182	4·99	258·44	Lotina's Noble of Oakland
438	Nightingale 2nd of Raith	Leslie & Gerrand ..	Ayrshire	6,855	3·76	258·09	Duke of Melton Park
439	Lady Grey 6th of St. Albans	A. E. Batson ..	Jersey ..	4,634	5·56	257·80	Black Fox
440	Polly of Golden Vein ..	J. Benallack ..	Ayrshire	6,132	4·20	257·69	Anither of Oakbank
441	Manor Roan Daisy ..	R. G. Morton ..	Shorthorn	6,856	3·76	257·49	Manor Monarch
442	Collingwood Beauty ..	Department of Agriculture	Jersey ..	4,310	5·97	257·31	Lady's Fox of Collingwood
443	Bright Jewel of St. Albans	R. Faragher ..	" ..	5,100	5·08	256·92	Silver Fox of Luscombe
444	Sheila 5th	Mrs. A. Black ..	" ..	4,951	5·18	256·57	Rufus
445	Mayflower of Seafield ..	W. Henderson ..	Ayrshire	6,743	3·79	255·76	Philosopher of Glengowrie
446	Mountain Princess of Langley Park	Callery Bros. ..	" ..	5,431	4·69	254·79	Bonnie's Chief of Langley Park
447	Ruby of Burnbrae ..	Sadler Bros. ..	" ..	6,755	3·78	253·97	Favourite of Shipley
448	Dahlia of Retreat ..	Galbraith Bros. ..	" ..	5,705	4·43	253·11	Anthony of Gleneira
449	Blanche of Woodburn ..	J. Benallack ..	" ..	6,520	3·88	253·08	Sunshine's Pride of Woodburn
450	Madeira Flinders ..	Sale High School ..	" ..	6,471	3·91	253·05	Landlord
451	Viola 5th of Gleneira ..	W. Henderson ..	" ..	5,955	4·24	252·45	Triumph of Gleneira

COWS OVER 4 YEARS OF AGE OR ON THIRD LACTATION PERIOD—250 LBS. STANDARD—*continued.*

Order of Merit.	Name.	Owner.	Breed.	Milk.	Average Test.	Butter Fat.	Sire.
				lbs.		lbs.	
452	Gem of Roxburgh ..	J. A. Lang ..	Ayrshire	6,020	4·18	251·74	Glen Elgin's Grand Duke
453	Morven Lizzie 10th ..	Kerr Bros. ..	Shorthorn	7,107	3·54	251·41	Manor York Rose 10th
454	Rose of Welbourne ..	G. Rowe ..	Jersey ..	5,330	4·39	251·40	Audrey's Lad
455	Lady Mac 2nd of Gleneira	W. Henderson ..	Ayrshire	6,614	3·80	251·34	Goldmine's Majestic of Gleneira
456	Treasure of Ben Kell ..	R. Ralston ..	,, ..	6,469	3·88	251·20	Girvan of Oakbank
457	Oatland's Tip.. ..	J. Thorburn ..	,, ..	5,491	4·57	251·12	Young Poet
458	Morven Ruby ..	Kerr Bros. ..	Shorthorn	6,802	3·83	250·65	Manor York Rose
459	Pearl of Carracoorte ..	W. Henderson ..	Ayrshire	5,577	4·49	250·58	Fritz of Rythdale

Cows under 4 Years of Age—200 lbs. Standard.

Order of Merit.	Name.	Owner.	Breed.	Milk.	Average Test.	Butter Fat.	Sire.
				lbs.		lbs.	
1	Agnes of Warenda ..	T. Mesley ..	Jersey ..	7,779	6·40	497·72	Carrie 5th's Noble of Melrose
2	Ragtime of Warenda ..	T. Mesley ..	,, ..	6,811	7·08	482·14	Carrie 5th's Noble of Melrose
3	Valda's Queen of Somerville	Finn Bros. ..	,, ..	9,277	5·01	464·41	Rochdale King
4	Chevy 12th of Melrose..	J. Hunter ..	,, ..	7,431	6·14	455·98	Handsome Boy 5th of Melrose
5	Queenie of Ashby ..	Dickinson Bros. ..	Friesian	10,906	4·01	440·29	Pearl's Prince of Brundee
6	Viola of Sparrovale ..	Geelong Harbor Trust	Ayrshire	9,261	4·69	434·34	Scottish King of Gowrie Park
7	Silvermine 18th of Banyule	Lyon and Kerr ..	Jersey ..	8,435	5·12	431·85	Mabel's Chief
8	Vixen of Tarnpirr ..	J. Hunter ..	,, ..	8,102	5·26	431·27	Amy's Choice of Tarnpirr
9	Bluebell 2nd of Jerseyholm.	T. Harvey ..	,, ..	7,507	5.57	419·26	Emperor
10	Bolobek Bella ..	Kerr Bros. ..	Friesian	12,366	3·39	418·91	Indulge Johanna Lad
11	Lassie 7th Princess of Clover Flat	D. G. Tomkins ..	Jersey ..	8,775	4·76	417·48	Prince Noreen
12	Tulip Flower	A. W. Jones ..	Friesian	13,415	3·16	416·66	Canterbury Statesman
13	Beauty of Craigneil ..	A. W. Jones ..	,, ..	10,777	3·84	413·94	Canterbury Statesman
14	Molly 6th of Banyule ..	Lyon and Kerr ..	Jersey ..	8,670	4·76	411·81	Audrey's Lord Twylish
15	Welcome of Tarnpirr ..	Estate Mrs. Alston	,, ..	6,091	6·75	410·93	First Choice of Melrose
16	Graceful Duchess 19th of Melrose	W. Woodmason ..	,, ..	6,296	6·42	403·98	Handsome Boy 5th of Melrose
17	Rarity 11th of Melrose..	J. Hunter ..	,, ..	7,096	5·67	402·61	Handsome Boy 5th of Melrose
18	Coleus of Springhurst ..	C. Deverall ..	,, ..	5,774	6·97	402·26	Brighton Cub
19	Kirsty 8th of Jerseyholm	T. Harvey ..	,, ..	7,239	5·46	395·02	Emperor
20	Edelweiss of Springhurst	J. D. Read ..	,, ..	6,773	5·82	394·50	Fisher
21	Goldy of Strathbow ..	I. Raggatt ..	,, ..	6,293	6·26	393·94	Mac of Tarnpirr
22	Virginia of Springhurst	J. D. Read ..	,, ..	6,310	6·23	393·41	Haig of Springhurst
23	Laura 10th of Melrose ..	W. Woodmason ..	,, ..	6,262	6·25	391·43	Handsome Boy 5th of Melrose
24	Lily of Holly Green ..	H. L. Webb ..	Ayrshire	8,327	4·69	390·61	Rex of Oakbank
25	Laura 12th of Melrose ..	R. H. Maher ..	Jersey ..	6,492	6·00	389·40	Golden Fern's Viscount
26	Springfield de Kol ..	Flack and Sewell ..	Friesian	8,481	4·59	389·32	Rosevale Inka Sylvia Posch
27	Celia of Woorayl ..	Leongatha High School	Jersey ..	7,186	5·39	387·53	Butter Boy
28	Cornflower of Springhurst	J. D. Read ..	,, ..	7,432	5·18	384·90	Brighton Cub
29	Jenny Lind 13th of Melrose	R. H. Maher ..	,, ..	6,529	5·89	384·71	Golden Fern's Viscount
30	Music of Warenda ..	T. Mesley ..	,, ..	6,523	5·90	384·60	Jessie's Handsome Boy
31	Starleigh's Princess of Clover Flat	W. J. Coleman ..	,, ..	7,004	5·45	381·65	Prince Noreen
32	Silvermine 20th of Banyule	Lyon and Kerr ..	,, ..	6,443	5·90	380·17	Mabel's Chief
33	Wee Choice of Tarnpirr	A. W. Jones ..	,, ..	5,339	7·11	379·70	Royal Rose's Choice
34	Empress of Springhurst	J. D. Read ..	,, ..	7,166	5·28	378·36	Brighton Cub
35	Ransome of Craigneil ..	A. W. Jones ..	Friesian	12,808	2·91	377·09	Canterbury Statesman
36	St. Albans Gem ..	A. W. Jones ..	,, ..	11,251	3·34	376·14	Pearl's Prince of Brundee
37	Trixie of Evergreen ..	H. S. Gibson ..	Ayrshire	8,406	4·45	375·29	General Gordon
38	Sparkle 3rd of Jerseyholm	T. Harvey ..	Jersey ..	6,002	6·14	369·53	Emperor
39	Lassie Fowler 7th of Melrose	W. Woodmason ..	,, ..	6,371	5·77	367·90	Handsome Boy 5th of Melrose

COWS UNDER 4 YEARS OF AGE—200 LBS. STANDARD—*continued.*

Order of Merit.	Name.	Owner.	Breed.	Milk.	Average Test.	Butter Fat.	Sire.
				lbs.		lbs.	
40	Countess Lulu of Corfield	Flack and Sewell ..	Friesian	10,570	3·47	366·92	De Kol Artis Rooker
41	Peerless 20th of Melrose	R. H. Maher ..	Jersey ..	6,600	5·45	360 71	Golden Fern's Viscount
42	Queenie of Bellarie ..	W. J. Coleman ..	,, ..	6,859	5·26	350·57	Fox Trot
43	Quality 8th of Melrose	J. Hunter ..	,, ..	6,072	5·88	357·15	Handsome Boy 5th of Melrose
44	Beauty 2nd of Bonshaw	P. J. Maloney ..	,, ..	6,317	5·64	356·51	Laddie 2nd of Banyule
45	Queenie of Willow Park	W. K. Atkinson ..	Shorthorn	8,492	4·16	353·51	Havelock of Darbalara
46	Primrose 2nd of Melrose	R. H. Maher ..	Jersey ..	6,373	5·53	352·59	Golden Fern's Viscount
47	Myrtle of Springhurst ..	C. Deverall ..	,, ..	5,801	6·01	348·84	Investig tor of Melrose
48	Bolobek Amy.. ..	O. J. Syme ..	Friesian	10,482	3·32	348 63	Rhoda Prince of Rubicon
49	Fay of Banyule ..	H. Perriau ..	Ayrshire	8,765	3·98	348·18	Rational of Oakbank
50	Mabel's Petal of Banyule	Lyon and Kerr ..	Jersey ..	6,367	5·46	347·42	Mabel's Chief
51	Brown Bess of La Motte	S. A. Johnson ..	Ayrshire	7,529	4·57	343·83	Captain Tasman
52	Peerless 20th of Melrose	W Woodmason ..	Jersey ..	6,348	5·40	343·08	Handsome Boy 5th of Melrose
53	Maid's Princess 2nd of Clover Flat	F. Raggatt ..	,, ..	6,646	5·10	338·77	Prince Noreen
54	Duchess of Willow Park	W. K. Atkinson ..	Shorthorn	9,129	3·70	337·52	Havelock of Darbalara
55	Myra of Langley Park ..	Callery Bros. ..	Ayrshire	8,540	3·94	336·52	Playaway of Willowvale
56	ardon of Ben Kell ..	R. Ralston ..	,, ..	7,917	4·24	335·52	Girvan of Oakbank
57	Jessamine of La Motte	S. A. Johnson ..	,, ..	8,420	4·12	334·33	Captain Tasman
58	Gingercake of Glen Iris	P. Chirnside ..	Jersey ..	5,996	5·53	331·51	Brown Chief
59	Countess of Willow Park	W. K. Atkinson ..	Shorthorn	7,271	4·55	330·07	Havelock of Darbalara
60	Meg of Elthamleigh ..	O. Cutler.. ..	Jersey ..	6,107	5·40	330·01	Lucius 2nd
61	Picotee of Springhurst	J. D. Read ..	,, ..	6,488	5·08	329·32	Brighton Cub
62	Leonora Canary (Imp.)	Flack and Sewell ..	Friesian	8,076	4·07	329 0.	Sir Canary Pietji
63	St. Albans Lady ..	A. W. Jones ..	,, ..	8,206	4·00	328·50	Pearl's Prince of Brundee
64	Fancy Queen of Ferndale	D. C. Miller ..	Jersey ..	6,591	4·93	325·05	Lord Grey of St. Albans
65	Peerless 18th of Melrose	W. Woodmason ..	,, ..	5,502	5·89	324·18	Golden Fern's Viscount
66	Lotus of Burnbrae ..	Sadler Bros. ..	Ayrshire	7,584	4.27	323·52	Laura's Laird of Gowrie Park
67	Vanilla 13th of Melrose..	R. H. Maher ..	Jersey ..	6,202	5·21	323·28	Golden Fern's Viscount
68	Linda 2nd of Bonshaw..	Mrs. E. M. Lennie..	,, ..	6,313	5·16	322·24	Laddie 2nd of Banyule
69	May of Clover Flat ..	F. Raggatt ..	,, ..	6,164	5·13	316·43	Prince Noreen
70	Annetta of View Point	H. D. W. Canobio	Ayrshire	7,966	3·96	315·52	Jimmie of View Point
71	Blossom of Sparrovale	Geelong Harbor Trust	,, ..	6,319	4·99	315·48	Stuart of Gowrie Park
73	Heroine of Springvale ..	R. C. Campbell ..	Jersey ..	6,135	5·13	315·32	Jersey King
73	Bolobek Ruby ..	O. J. Syme ..	Friesian	10,403	3·03	315·27	Rhoda Prince of Rubicon
74	Nellie of Craigneil ..	A. W. Jones ..	,, ..	8,258	3·80	314·14	King Mercena
75	Annie of Holly Green ..	H. L. Webb ..	Ayrshire	7,814	4·02	313·82	Prince of Holly Green
76	Nemophila of Springhurst	J. D. Read ..	Jersey ..	5,362	5·76	309·06	Investigator of Melrose
77	Pretty of Retreat ..	W. J. Muhleback ..	Ayrshire	7,120	4·36	306·28	Musician of Willowvale
78	Duchess of Evergreen ..	H. S. Gibson ..	,, ..	7,584	4·03	305·74	General Gordon
79	Bainfield No. 40 ..	Flack and Sewell ..	Friesian	8,548	3·56	304·44	Medbury Prince
80	Primrose of Sparrovale	Geelong Harbor Trust	Ayrshire	6,421	4·70	302·08	Scottish King of Gowrie Park
81	Woodruff Lady Monda..	Lyon and Kerr ..	Jersey ..	5,960	5·06	301·64	Lord Richmond
82	Rosalena	Leongatha High School	,, ..	4,745	6·36	300·90	Butter Boy
83	Marie of Bonshaw ..	P. J. Maloney ..	,, ..	6,448	4·60	296·67	Laddie 2nd of Banyule
84	Daisy of Bignold ..	F. W. Beischer ..	,, ..	5,814	5·09	296·19	Beauty 3rd's Fox
85	Bolobek Ursula ..	O. J. Syme ..	Friesian	7,943	3·85	295·53	Rhoda Prince of Rubicon
86	Bonnie of Glencairn ..	J. H. Rogers ..	Ayrshire	9,030	3·26	295·53	Zero of Rythdale
87	Nico Noco	Department of Agriculture	Red Poll	7,021	4·20	294·85	Nicotine
88	Little Virtue of Ellerslie	L. McFarlane ..	Ayrshire	6,325	4·64	293·64	Leila's Jamie of Ellerslie
89	Chance of Golden Vein..	W. McIvor ..	,, ..	7,376	3·97	292·61	Sergeant of Golden Vein
90	Noorat Grey Girl ..	Mrs. A. Black ..	Jersey ..	5,865	5·00	292·18	Obelisk
91	Floss of Sparrovale ..	Geelong Harbor Trust	Ayrshire	7,137	4·07	290·64	Scottish Chief of Sparrovale
92	Kyora Merry Mike's Mayflower	Miss L. Robinson ..	Jersey ..	6,021	4·80	289·27	Merry Mike
93	Emily of Riccarton ..	J. A. Lang ..	Ayrshire	6,671	4·33	288·60	White Prince of Gleneira
94	Queen Mary of Gleneira	L. McFarlane ..	,, ..	7,539	3·81	287·60	Beau of Gleneira
95	Cambria	Mrs. M. E. Carroll	Red Poll	6,900	4·17	287·46	Nicotine
96	Melba of Sparrovale ..	Geelong Harbor Trust	,,	6,378	4·56	287·04	Scottish King of Gowrie Park
97	Prue 2nd of Carracoorte	W. Henderson ..	Ayrshire	6,236	4·59	286·46	Lord Dudley of Gowrie Park
98	Roseleaf of Langley Park	Callery Bros. ..	,, ..	5,799	4·94	286·33	Bonnie's Chief of Victoria Bank
99	Lassie Fowler 8th of Melrose	R. H. Maher ..	Jersey ..	4,897	5·83	285·39	Golden Fern's Viscount
100	Hilda 2nd of Raith ..	Leslie and Gerrand	Ayrshire	7,514	3·79	285·09	Ronald of Raith
101	Verbena of Warrook ..	Cockbill and Gibbs	,, ..	6,638	4·20	283·14	Fritz of Warook

COWS UNDER 4 YEARS OF AGE—200 LBS. STANDARD—*continued.*

Order of Merit.	Name.	Owner.	Breed.	Milk.	Average Test.	Butter Fat.	Sire.
				lbs.		lbs.	
102	Lupin of Medburn Grove	C. Bamford ..	Ayrshire	7,047	4·00	282·39	St. Elfred of Willowvale
103	Lady Grey 9th of St. Albans	A. W. Jones ..	Jersey ..	4,653	6·04	281·10	Sweet Fox 2nd of St. Albans
104	Peeress of St. Albans ..	T. R. Findlay ..	,, ..	5,202	5·36	278·87	Sweet Fox 2nd of St. Albans
105	Empress of Langley Park	Callery Bros. ..	Ayrshire	6,266	4·44	278·37	Playaway of Willowvale
106	Adella's Pet of Inverleigh	A. H. Schier ..	,, ..	5,624	4·85	272·73	Major of Gowrie Park
107	Pride of Wattle Bank ..	A. Kirly	,, ..	6,110	4·45	272·12	Brownie of Gowrie Park
108	Myrtle of Sparrovale ..	Geelong Harbor Trust	,, ..	5,764	4·69	270·54	Scottish Chief of Sparrovale
109	Mary of Oakbank ..	Cockbill and Gibbs	,, ..	5,994	4·51	270·06	Brilliant Star of Oakbank
110	Beauty of Medburn Grove	C. Bamford ..	,, ..	6,432	4·14	266·32	St. Elfred of Willowvale
111	Silverine of Inverleigh ..	A. H. Schier ..	,, ..	5,723	4·62	264·75	Marker of Balvormie
112	Graceful of Roxburgh ..	T. Douglas ..	,, ..	5,295	4·99	264·16	Jock of Roxburgh
113	Katie	R. G. Dent ..	Red Poll	5,411	4·84	262·04	Borcum
114	Tilly Lantry 2nd of Waranda	T. Mesley ..	Jersey ..	4,300	6·08	261·53	Jessie's Handsome Boy
115	Queenie of Langley Park	Callery Bros. ..	Ayrshire	4,987	5·22	260·55	Playaway of Willowvale
116	Mulberry of Ayrorae ..	L. McFarlane ..	,, ..	6,380	4·05	258·39	Lancelot of Gleneira
117	Moel of Langley Park ..	Callery Bros. ..	,, ..	6,317	4·07	253·37	Playaway of Willowvale
118	Venus of Dunachton ..	R. Hall	,, ..	7,120	3·62	257·51	Ronald of Raith
119	Canary 11th of Kingsvale	Mrs. F. M. Akehurst	Jersey ..	4,123	6·19	255·43	Carnation's Fancy North wood King
120	Welcome of Ben Kell ..	R. Ralston ..	Ayrshire	7,203	3·54	255·06	Girvan of Oakbank
121	Charm of Golden Vein	J. A. Lang ..	,, ..	6,058	4·21	254·94	Bonnie Lad of Golden Vein
122	Morocco's Choice of Kirkhill	D. C. Miller ..	Jersey ..	4,121	6·16	254·84	Blanchette's Fox
123	Bluebell 2nd of Carracoorte	W. Henderson ..	Ayrshire	5,568	4·55	253·47	Fritz of Rythdale
124	Dolly Brown of Inverleigh	A. H. Schier ..	,, ..	6,587	3·85	253·37	Index of Balvormie
125	Iris of Wethersdane ..	G. Keys	,, ..	6,003	4·20	252·39	His Majesty of Wethersdane
126	Heather of Winslade ..	L. McFarlane ..	,, ..	5,217	4·83	251·91	Bowler of Seafield
127	Bloom of Roxburgh ..	W. T. Cullen ..	,, ..	5,748	4·37	251·36	Gallant Duke
128	Pearl of Ferndale ..	D. C. Miller ..	Jersey ..	5,073	4·95	251·03	Lord Grey of St. Albans
129	Bunty 3rd of Carracoorte	W. Henderson ..	Ayrshire	5,275	4·74	250·26	Lord Dudley of Gowrie Park
130	Noorat Flashlight 2nd ..	Mrs. A. Black ..	Jersey ..	5,019	4·96	248·73	Milklad of Banyule
131	Flossie of Carracoorte ..	W. Henderson ..	Ayrshire	5,473	4·54	248·67	Bruin of Gleneira
132	Ornitha	Department of Agriculture	Red Poll	5,147	4·80	247·13	Nicotine
133	Ada 2nd of Carracoorte	W. Henderson ..	Ayrshire	6,006	4·11	246·93	Lord Dudley of Gowrie Park
134	Verbena of Retreat ..	W. J. Muhlebach ..	,, ..	5,013	4·91	246·44	Musician of Willowvale
135	Greta of Burnbrae ..	Sadler Bros. ..	,, ..	6,608	3·73	246·16	Laura's Laird of Gowrie Park
136	Violet of Retreat ..	W. Meredith ..	,, ..	6,227	3·94	245·14	Musician of Willowvale
137	Laodicea	Department of Agriculture	Red Poll	5,433	4·51	244·85	Belligerent
138	Flanderina	Department of Agriculture	,, ..	5,911	4·11	241·77	Nicotine
139	Morven Duchess 17th ..	Kerr Bros. ..	Shorthorn	6,168	3·97	244·65	Manor York Rose 10th
140	Jessica of Banyule ..	Lyon and Kerr ..	Jersey ..	3,942	6·78	243·80	Investigator of Melrose
141	Juliet of Carracoorte ..	W. Henderson ..	Ayrshire	5,313	4·58	243·40	Lord Dudley of Gowrie Park
142	Yum Yum	G. A. Waite ..	Friesian	6,091	3·98	242·82	Count Togo
143	Marcia of Woolamai Park	G. Kent	Ayrshire	6,517	3·71	241·75	Marcus of Holly Green
144	Ada of Wattle Bank ..	A. Kirby	,, ..	5,674	4·23	239·94	Brownie of Gowrie Park
145	Lady of Targoora ..	J. L. and E. I. Henderson	Jersey ..	4,683	5·09	238·32	Lotina's Defender of Kyora
146	Edith 5th of Hillfield ..	F. Sadler.. ..	Shorthorn	6,121	3·88	237·46	43rd Earl of Pentland
147	Lady Jar 4th of Gleneira	F. McIver ..	Ayrshire	6,284	3·76	236·35	Jock of Gowan Bank
148	Balm of Carracoorte ..	W. Henderson ..	,, ..	5,557	4·25	236·26	Victorious of Warrook
149	Rosebloom 2nd of Carracoorte	W. Henderson ..	,, ..	5,771	4·08	235·80	Victor 2nd of Carracoorte
150	Duchess of Darley ..	R. G. Morton ..	Shorthorn	6,674	3·53	234·61	Morven Myrtle Duke
151	Chance	T. H. Payne ..	Red Poll	5,772	4·05	233·75	Honingham Alake 3rd
152	Doey of Riccarton ..	W. T. Cullen ..	Ayrshire	6,074	3·83	232·68	White Prince of Gleneira
153	Petti Sing	G. A. Waite ..	Friesian	5,744	4·03	231·37	Count Togo
154	Bloom of Ben Kell ..	G. Vallance ..	,, ..	5,258	4·37	229·90	Girvan of Oakbank
155	Springfield Molly ..	Flack and Sewell ..	,, ..	6,057	3·79	229·56	Rosevale Inka Sylvia Posch
156	Sparkle 2nd of Carracoorte	W. Henderson ..	Ayrshire	5,138	4·45	228·46	Lord Dudley of Gowrie Park
157	Esme 2nd of Riccarton..	J. A. Lang ..	,, ..	6,243	3·65	227·75	White Prince of Gleneira
158	Dainty 2nd of Carracoorte	W. Henderson ..	,, ..	4,615	4·90	227·45	Bruce of Warrook
159	Morven Duchess 16th ..	Kerr Bros. ..	Shorthorn	5,710	3·96	226·15	Manor York Rose 10th
160	Melody of Fernhill ..	A. Kirby ..	Ayrshire	5,849	3·85	225·47	Renown of Oakbank
161	Lady Grey 10th of St. Albans	A. W. Jones ..	Jersey ..	4,411	5·07	223·66	Sweet Fox 2nd of St. Albans
162	Pink of Springhurst ..	J. D. Read ..	,, ..	4,906	4·51	221·41	Kitchener
163	Noorat Sheila.. ..	Mrs. A. Black ..	,, ..	4,196	5·27	221·38	Obelisk

COWS UNDER 4 YEARS OF AGE—200 LBS. STANDARD—*continued.*

Order of Merit.	Name.	Owner.	Breed.	Milk.	Average Test.	Butter Fat.	Sire.
				lbs.		lbs.	
164	Ruby of Riverside	J. H. Rogers	Ayrshire	5,558	3·98	221·30	Adela's Jamie of Ellerslie
165	Velvet of Wethersdane	W. and J. Cockbill	„	5,134	4·30	220·59	His Majesty of Wethersdane
166	Daisy Posch Artis of Corfield	Flack and Sewell	Friesian	6,097	3·60	219·38	De Kol Artis Rooker
167	Fairy of Burnbrae	Sadler Bros.	Ayrshire	6,392	3·42	218·74	Bonnie King of Gowrie Park
168	Princess of Burnbrae	Sadler Bros.	„	4,677	4·08	218·66	Bonnie King of Gowrie Park
169	Werribee Northern Larkspur 3rd	A. W. Findlay	Jersey	3,899	5·61	218·60	Island Butter King
170	Gertie 3rd of Carracoorte	W. Henderson	Ayrshire	4,451	4·91	218·45	Victorious of Warrook
171	Vanity of Burnside	R. Goodman	„	5,214	4·17	217·65	Gregor of Oakbank
172	Mary of Ayrbrae	L. McFarlane	„	5,680	3·83	217·55	Harmonist of Ellerslie
173	Helna of Carracoorte	W. Henderson	„	5,109	4·22	215·35	Lord Dudley of Gowrie Park
174	Viola of Carracoorte	W. Henderson	„	4,901	4·38	214·47	Victorious of Warrook
175	Affinity of Oakbank	W. Meredith	„	5,236	4·09	214·13	Gallant of Oakbank
176	Ada of Roseleigh	G. Gange	„	5,305	3·99	212·81	Burleigh of Gowrie Park
177	Violet 2nd of Carracoorte	W. Henderson	„	4,136	5·14	212·74	Lord Dudley of Gowrie Park
178	Elena of Springfield	M. and W. A. Francis	„	5,043	4·22	212·67	Donald of Wethersdane
179	Peeress of Ayrbrae	L. McFarlane	„	4,814	4·40	211·89	Earl of Drayton
180	Buttercup 3rd of Bonshaw	Mrs. E. M. Lennie	Jersey	3,850	5·49	211·22	Laddie 2nd of Banyule
181	Cloverleaf of Medburn Grove	C. Bamford	Ayrshire	5,474	3·85	210·80	St. Elfred of Willowvale
182	Toronto	Department of Agriculture	Red Poll	4,230	4·93	209·76	Belligerent
183	Mayflower of Carracoorte	W. Henderson	Ayrshire	5,911	3·54	209·50	Cocky Rab of Glencira
184	Beauty's Daphodil of Lesterfield	P. Chirnside	Jersey	4,255	4·89	208·10	Lesterfield Handsome Boy
185	Clarice of Burnbrae	Sadler Bros.	Ayrshire	4,999	4·15	207·48	Laura's Laird of Gowrie Park
186	Jessie 23rd of Melrose	E. A. Denis	Jersey	3,288	6·27	206·29	Golden Fern's Viscount
187	Maud 2nd	Cockbill and Gibbs	Ayrshire	5,014	4·06	203·64	The Drummer
188	Morven Lizzie 9th	Kerr Bros.	Shorthorn	4,781	4·25	203·36	Morven Charming Duke 2nd
189	Carine of Clarendoneyre	C. J. Reid	Jersey	3,907	5·20	203·27	Lotina's Larkspur Twylish
190	Laura of Dunachton	R. Hall	Ayrshire	5,476	3·71	203·10	Adela's Jamie of Raith
191	Myrtle 2nd of Jersey Vale	Mrs. L. Orchard	Jersey	3,657	5·55	202·96	Golden Twylish
192	Jubilee Violet	Miss B. Reid	„	3,513	5·72	200·98	Twylish Madeira's Fox 2nd
193	Rita of Inverleigh	A. H. Schier	Ayrshire	4,964	4·04	200·51	Lavendo of Glencairn
194	Jubilee Willoh	Miss B. Reid	Jersey	4,972	4·02	200·37	Twylish Madeira's Fox 2nd

Heifers—175 lbs. Standard.

Order of Merit.	Name.	Owner.	Breed.	Milk.	Average Test.	Butter Fat.	Sire.
				lbs.		lbs.	
1	Agnes of Warenda	T. Mesley	Jersey	8,307	6·35	527·20	Carrie's 5th Noble of Melrose
2	Garenne 4th of Warenda	T. Mesley	„	7,180	6·05	434·35	Jessie's Handsome Boy
3	Meadow Sweet of Warenda	T. Mesley	„	6,551	6·16	403·71	Jessie's Handsome Boy
4	Empress 3rd of Holmwood	T. Harvey	„	6,890	5·81	400·43	Emperor
5	Boronia of Sparrovale	Geelong Harbor Trust	Ayrshire	8,824	4·53	399·76	Jamie of Sparrovale
6	Cutty Sark	Department of Agriculture	Red Poll	8,473	4·40	373·12	Belligerent
7	Princess 2nd of Grangelea	A. A. Broad	Jersey	6,880	5·40	371·53	Grey Lad
8	Little Queen of Warenda	T. Mesley	„	6,584	5·61	369·66	Jessie's Handsome Boy
9	Molly 6th of Banyule	Lyon and Kerr	„	8,035	4·51	362·34	Audrey's Lord Twylish
10	Chorus Girl of Banyule	Lyon and Kerr	„	6,759	5·35	361·28	Audrey's Lord Twylish
11	Bolobek Annie	O. J. Syme	Friesian	9,377	3·82	357·84	Rhoda Prince of Rubicon
12	Lucy Grey of Colac	T. R. Findlay	Jersey	6,892	5·19	357·37	Lady Grey 4th's Fox
13	Butterlass of Bolgonia	P. J. Maloney	„	7,439	4·80	356·72	Laddie 2nd of Banyule
14	Lady Dulcie of Ben Kell	R. Ralston	Ayrshire	8,389	4·25	356·35	Marvel of Willowvale
15	Monavale Catronia Paxton	Flack and Sewell	Friesian	9,027	3·83	356·00	Prince Pietje Paxton
16	Babs of Somerville	J. Hutchinson	Jersey	6,827	5·08	347·04	Daphne's Prince
17	Phyllis 3rd of Ashby	Dickinson Bros.	Friesian	8,885	3·83	340·02	St. Albans' May King
18	Lily of Craigneil	A. W. Jones	„	8,402	4·03	338·44	Canterbury Statesman
19	Molly 7th of Banyule	Lyon and Kerr	Jersey	7,241	4·65	336·40	Audrey's Lord Twylish

HEIFERS—175 LBS. STANDARD—*continued.*

Order of Merit.	Name.	Owner.	Breed.	Milk.	Average Test.	Butter Fat.	Sire.
				lbs.		lbs.	
20	Flower 14th of Melrose	A. L. Walter ..	Jersey ..	5,264	6·35	334·01	Golden Fern's Viscount
21	Alvie of Roselcigh ..	G. Gange ..	Ayrshire	7,297	4·53	330·71	Burleigh of Gowrie Park
22	Fairy Queen of Springvale	R. C. Campbell ..	Jersey ..	5,666	5·81	329·14	Comedy King
23	Highland Queen of Evergreen	H. S. Gibson ..	Ayrshire	7,472	4·38	327·32	Luminous of Drayton
24	Clover of Saranac ..	R. Faragher ..	Jersey ..	5,867	5·58	327·22	Lord Richmond
25	Forty Winks ..	J. Scott	„ ..	6,347	5·14	326·39	Lotina's Defender of Kyora
26	Handsome Girl 9th of Melrose	W. Woodmason ..	„ ..	5,094	6·41	326·36	Golden Fern's Viscount
27	Monavale Juno Paxton	J. Platfuss ..	Friesian	9,766	3·34	325·97	Prince Pietje Paxton
28	Leura of Burnbrae ..	Sadler Bros. ..	Ayrshire	7,018	4·64	325·57	Bonnie King of Gowrie Park
29	Cherry of Willow Park..	W. K. Atkinson ..	Shorthorn	8,733	3·72	324·67	Havelock of Darbalara
30	Beautiful of Retreat ..	W. J. Muhlebach ..	Ayrshire	7,145	4·54	324·49	Musician of Willowvale
31	Blanche of Willow Park	W. K. Atkinson ..	Shorthorn	7,820	4·11	321·77	Havelock of Darbalara
32	Lady Grey 12th of St. Albans	A. W. Jones ..	Jersey	5,732	5·60	321·01	Admiral 2nd
33	Bolobek Dot	O. J. Syme ..	Friesian	9,175	3·46	317·42	Rhoda Prince of Rubicon
34	Cream Belle 3rd of Gnarbrook	A. W. Jones ..	Jersey ..	5,463	5·76	314·69	Sir Antonio
35	Jenny Lind 15th of Melrose	W. Woodmason ..	„ ..	5,697	5·52	314·28	Golden Fern's Viscount
36	Thora 7th of Banyule ..	Lyon and Kerr ..	„ ..	5,748	5·42	311·47	Audrey's Lord Twylish
37	Buttermaid 2nd ..	A. W. Jones ..	Friesian	7,873	3·95	311·03	King Mercena
38	Phyllis 2nd of Warenda	T. Mesley ..	Jersey ..	5,788	5·36	310·45	Jessie's Handsome Boy
39	Valdas Belle of Somerville	J. Hutchinson ..	„ ..	5,404	5·74	310·40	Daphne's Prince
40	Muriel 2nd of Somerset	A. E. Batson ..	„ ..	5,631	5·48	307·61	Lady Grey 2nd's Golden Spark
41	Cantata of Banyule ..	Lyon and Kerr ..	„ ..	5,907	5·21	307·51	Audrey's Lord Twylish
42	Sunbeam of Somerville	H. Luxton ..	„ ..	5,445	5·64	306·93	Daphne's Prince
43	Statutte 3rd of Banyule	Lyon and Kerr ..	„ ..	5,701	5·38	306·92	Lord Silvermine 8th
44	Segis Hengerveld of Lydholme	Flack and Sewell ..	Friesian	8,580	3·58	306·82	Chucy Hengerveld of Lydholme
45	Daisy 12th of Melrose ..	W. Woodmason ..	Jersey ..	5,556	5·49	305·11	Golden Fern's Viscount
46	Belle A	R. Faragher ..	„ ..	5,890	5·18	304·98	Bell Boy of Hillcrest
47	Maudie 2nd of Retreat	N. Gange ..	Ayrshire	7,952	3·83	304·76	Musician of Willowvale
48	Primrose of Winslade ..	C. Lees	„ ..	6,046	5·04	304·67	Bowler of Seafield
49	Molly 8th of Banyule ..	Lyon and Kerr ..	Jersey ..	5,516	5·50	303·53	Milkmaid's Chief
50	Neat Lady of Springvale	R. C. Campbell ..	„ ..	5,348	5·64	301·37	Admiral
51	Pansy 6th of Ferntree Vale	E. A. Denis ..	„ ..	5,336	5·58	297·54	Starbright Renard
52	Chromate of Banyule ..	Lyon and Kerr ..	„ ..	5,836	5·09	296·93	Audrey's Lord Twylish
53	Modesty 2nd of Retreat	W. J. Muhlebach ..	Ayreshire	6,201	4·78	296·60	Musician of Willowvale
54	Attraction	S. S. Cameron ..	Jersey ..	4,916	6·02	296·17	Attraction's Fox
55	Jessie 11th of Ferntree Vale	J. Phillips ..	„ ..	7,290	4·05	295·57	Starbright Renard
56	Joy of Tarnpirr ..	F. Trevaskis ..	„ ..	5,224	5·65	294·94	My Queen's Choice
57	Brabantia	Department of Agriculture	Red Poll	6,429	4·59	294·78	Nicotine
58	Belle of Craigneil ..	A. W. Jones ..	Freisian	8,207	3·58	294·23	De Kol of Canada
59	Countess Lulu of Corfield	Flack and Sewell ..	„ ..	7,422	3·95	293·10	De Kol Artis Rooker
60	Romneya of Springhurst	J. D. Read ..	Jersey ..	5,698	5·14	292·70	Petain
61	Butter Queen of Meryula	A. W. Jones ..	„ ..	5,531	5·28	292·05	Meryula
62	Dido 3rd of Banyule ..	Lyon and Kerr ..	„ ..	5,796	5·03	291·78	Audrey's Lord Twylish
63	Rose of Langley Park ..	Callery Bros. ..	Ayrshire	7,540	3·86	291·37	Playaway of Willowvale
64	Lotus of Banyule ..	Lyon and Kerr ..	Jersey ..	5,680	5·12	290·76	Clementine's King
65	Countess 2nd of Springhurst	J. D. Read ..	„ ..	5,624	5·16	290·00	Attraction of Springhurst
66	War Wings	Department of Agriculture	Red Poll	6,828	4·32	288·76	Longford Major
67	Bonnie Queen of Burnbrae	Sadler Bros. ..	Ayrshire	7,572	3·81	288·14	Bonnie King of Gowrie Park
68	Queen Curly	A. W. Jones ..	Friesian	8,402	3·43	287·99	King Mercena
69	Nettle of Burnbrae ..	Sadler Bros. ..	Ayrshire	7,384	3·89	285·57	Bonny King of Gowrie Park
70	Silvermine 21st of Banyule	Lyon and Kerr ..	Jersey ..	5,038	5·65	284·55	Audrey's Lord Twylish
71	Twill of Banyule ..	Lyon and Kerr ..	„ ..	6,095	4·67	284·48	Audrey's Lord Twylish
72	Hibiscus of Springhurst	J. D. Read ..	„ ..	6,214	4·57	284·22	Petain
73	Kitty 2nd of Somerset	A. E. Batson ..	„ ..	4,453	6·38	284·13	Lady Grey 2nd's Golden Spark
74	Linda of Medburn Grove	C. Bamford ..	Ayrshire	6,860	4·14	283·83	Lord Harry
75	Sweet Briar of Targoora	W. H. Waycott ..	Jersey	5,947	4·76	282·91	Lotina's Defender
76	Mighty Atom of Wethersdane	G. Keys	Ayrshire	5,689	4·91	282·35	His Majesty of Wethersdane
77	Brilliant 2nd of Kilmarnock	Sadler Bros. ..	„ ..	6,353	4·60	282·31	Laura's Laird of Gowrie Park
78	Cordyline Inka de Kol	A. W. Jones ..	Friesian	7,545	3·74	282·12	Cordyline Colantha Hero

HEIFERS—175 LBS. STANDARD—*continued.*

Order of Merit.	Name.	Owner.	Breed.	Milk.	Average Test.	Butter Fat.	Sire.
				lbs.		lbs.	
79	Fidget 2nd of Warrook	Cockbill and Gibbs	Ayrshire	6,689	4·21	281·76	Lena's Frederick
80	Heather Belle of Ayrbrae	L. McFarlane ..	,,	6,492	4·32	281·45	Harmonist of Ellerslie
81	Melilot of Springhurst ..	J. D. Read ..	Jersey ..	5,114	5·50	281·18	Petain
82	Eva 2nd of Glencairn ..	G. Gange ..	Ayrshire	6,652	4·21	279·89	Levendo of Glencairn
83	Pico	Department of Agriculture	Red Poll	6,844	4·07	278·75	Belligerent
84	Miss Muller 2nd of Berry	Flack and Sewell ..	Friesian	7,478	3·72	278·17	Marquis of Newport
85	Gladys of Sparrovale ..	Geelong Harbor Trust	Ayrshire	5,883	4·73	278·13	Scottish King of Gowrie Park
86	St. Alban's Helen ..	A. W. Jones ..	Friesian	8,050	3·45	277·64	Burdett's Pride
87	Queen of Wollingurry ..	A. Joshua ..	Jersey ..	5,522	5·02	277·44	Soprano's Mystifier of Warragaburar
88	Velvet of Wethersdane ..	G. Keys	Ayrshire	6,038	4·59	277·30	His Majesty of Wethersdane
89	Sir Fancy's Larkspur ..	F. Bidgood ..	Jersey ..	5,572	4·07	277·10	Sir Fancy's Madeira of Wyribee
90	Gaybelle of Wethersdane	G. Keys	Ayrshire	6,449	4·28	276·29	His Majesty of Wethersdane
91	Topsy of Evergreen ..	H. S. Gibson ..	,, ..	6,555	4·19	274·46	Luminous of Drayton
92	Jessie of Welbourne ..	G. Rowe ..	Jersey ..	5,880	4·66	274·27	Young Premier
93	St. Alban's Bess ..	A. W. Jones ..	Friesian	8,302	3·30	273·90	Burdett's Pride
94	Bolobek Blue Bell ..	O. J. Syme ..	,, ..	8,284	3·31	273·83	Johanna Lad
95	Waituki Princess Abigail	A. W. Jones ..	,, ..	8,039	3·38	272·02	Royal Prince Pietertji de Kol
96	Peerless of Meadow Vale	J. Hunter ..	Jersey ..	4,345	6·25	271·77	Handsome Lad
97	Victoria Corunna ..	Department of Agriculture	Friesian	7,635	3·55	271·08	Dominion Domino's Dutch Boy
98	Pearl of Langley Park ..	Callery Bros. ..	Ayrshire	5,926	4·57	270·70	Playaway of Willowvale
99	Gold Lass of Brookside	W. Tendeson ..	Jersey ..	5,796	4·66	270·10	Renard's Twylish
100	Honey of Wanalta ..	C. W. W. Macauley	,, ..	5,428	4·95	268·74	Noble Voice of Banyule
101	Marguerite of Springhurst	J. D. Read ..	,, ..	4,912	5·46	268·13	Petain
102	Plumbago of Springhurst	J. D. Read ..	,, ..	5,282	5·05	267·56	Petain
103	Favourite of Ben Kell ..	R. Ralston ..	Ayrshire	5,987	4·47	267·45	Marvel of Willowvale
104	Kirsty 11th of Jerseyholm	T. Harvey ..	Jersey ..	5,076	5·27	267·37	Emperor
105	Lorikeet of Banyule ..	Lyon and Kerr ..	,, ..	6,238	4·38	267·16	Audrey's Lord Twylish
106	Quality's Duchess of Lesterfield	A. W. Findlay ..	,, ..	4,832	5·52	266·81	Quality 6th's Son of Melrose
107	Princess of Coralee ..	Flack and Sewell ..	Friesian	7,684	3·44	264·59	Duke of Antwerp
108	Spot of Medburn Grove	C. Bamford ..	Ayrshire	5,778	4·58	264·58	St. Elfred of Willowvale
109	Boronia of Woodbyrne ..	J. Benallack ..	,, ..	6,245	4·23	263·91	Ballee of Oakbank
110	Soverign	Department of Agriculture	Red Poll	5,940	4·44	263·44	Belligerent
111	Sumontina	Department of Agriculture	,, ..	6,285	4·61	263 34	Belligerent
112	Starleigh of Strathbow ..	F. Raggatt ..	Jersey	4,730	5·53	261·65	Mac of Tarnpirr
113	Maudie of Riccarton ..	J. A. Lang ..	Ayrshire	6,170	4·23	260·81	Chief of Riccarton
114	Viola of Springhurst ..	J. D. Read ..	Jersey ..	4,892	5·36	260·29	Brighton Cub
115	Belle 2nd of Ellerslie ..	G. Gange ..	Ayrshire	5,888	4·42	260·19	Leila's Jamie of Ellerslie
116	Ashlyn 85th	J. T. Tweddle ..	Friesian	7,166	3·62	259·56	Royal King Champion
117	Lady Patty of Ferndale	W. M. Vale ..	Jersey ..	5,078	5·10	259·04	Lord Grey
118	Victoria Dutch Belle ..	Department of Agriculture	Friesian	6,956	3·72	258·74	Dominion Domino's Dutch Boy
119	Winnie of Ben Kell ..	R. Ralston ..	Ayrshire	5,915	4·37	258·58	Marvel of Willowvale
120	Morocco's Pansy of Staghorn	F. Bidgood ..	Jersey ..	4,710	5·49	258·57	Morocco's Bound
121	Beauty 5th of Somerville	J. Hutchinson ..	,, ..	6,092	4·24	258·22	Daphne's Prince
122	Peerless 18th of Melrose	W. Woodmason ..	,, ..	4,641	5·55	257·94	Golden Fern's Viscount
123	Mayflower of Sparrovale	Geelong Harbor Trust	Ayrshire	5,731	4·50	257·76	Jamie of Sparrovale
124	Olive of Rosedale ..	E. Payne ..	,, ..	6,768	3·81	257·69	Advance of Golden Vein
125	Rosemary of Springhurst	J. D. Read ..	Jersey ..	5,131	5·01	257·20	Petain
126	Sophie of Burnside ..	J. H. Rogers ..	Ayrshire	6,451	3·97	256·00	Gregor of Oakbank
127	Floss of Tuerong ..	A. W. Findlay ..	Jersey ..	4,835	5·29	255·70	Quality 6th's Son of Melrose
128	Petals Audrey of Elouera	J. Scott	,, ..	4,713	5·40	254·71	Audrey's Lord Twylish
129	Mayflower of Banyule ..	Lyon and Kerr ..	,, ..	4,729	5·38	254·41	May Boy of Banyule
130	Dorrie of Evergreen ..	H. S. Gibson ..	Ayrshire	5,612	4·52	253·84	Luminous of Drayton
131	Nora of Sparrovale ..	Geelong Harbor Trust	,, ..	5,360	4·73	253·63	Jamie of Sparrovale
132	Tulip of the Valley ..	Mrs. E. M. Lennie ..	Jersey ..	5,657	4·47	253·15	Butter Lad of Bonshaw
133	Roma of La Motte ..	S. A. Johnson ..	Ayrshire	5,539	4·39	253·05	Stuart of Gowrie Park
134	Bluebell of Strathbow ..	F. Raggatt ..	Jersey ..	4,865	5·19	252·64	Mac of Tarnpirr
135	Queen's Princess of Clover Flat	F. Raggatt ..	,, ..	5,458	4·63	252·50	Prince of Noreen
136	Mezzo of Banyule ..	Lyon and Kerr ..	,, ..	4,861	5·19	252·37	Audrey's Lord Twylish
137	Marjorie of Medburn Grove	C. Bamford ..	,, ..	5,809	4·34	251·98	St. Elfred of Willowvale
138	Lady of Sparrovale ..	Geelong Harbor Trust	Ayrshire	5,350	4·70	251·54	Scottish King of Gowrie Park

HEIFERS.—175 LBS. STANDARD.—*continued.*

Order of Merit.	Name.	Owner.	Breed.	Milk.	Average Test.	Butter Fat.	Sire.
				lbs.		lbs.	
139	La Marseillaise ..	Department of Agriculture	Red Poll	5,747	4·37	251·28	Longford Major
140	Adella's Pet of Inverleigh	A. H. Schier ..	Ayrshire	5,702	4·39	250·27	Major of Gowrie Park
141	Narcissus	Department of Agriculture	Friesian	6,751	3·70	249·60	Domiaion Domino's Dutch Boy
142	Graceful Duchess 20th of Melrose	W. Woodmason ..	Jersey ..	4,045	6·16	249·05	Golden Fern's Viscount
143.	Daisy 2nd of Fern Tree Vale	A. L. Walter ..	„ ..	4,936	5·04	248·83	Jessie's Boy of Melrose
144	Jeanette of La Motte ..	S. A. Johnson ..	Ayrshire	5,652	4·39	247·88	Malster of Seafield
145	Mulberry 2nd of Ayrbrae	L. McFarlane ..	„ ..	6,039	4·10	247·83	Jock of Gowan Bank
146	Lily 3rd of Fern Tree Vale	W. M. Vale ..	Jersey ..	4,738	5·16	247·41	Pearl's 3rd Audrey Twylish
147	Fuchsia of Springhurst..	J. D. Read ..	„ ..	4,627	5·33	246·69	Attraction of Springhurst
148	Dahlia of Springhurst ..	J. D. Read ..	„ ..	4,209	5·85	246·14	Petain
149	Butterfly of Burnbrae	Sadler Bros. ..	Ayrshire	6,218	3·95	245·91	Bobbie Burns of Burnbrae
150	Trefoil 2nd of Springhurst	J. D. Read ..	Jersey ..	4,561	5·38	245·45	Attraction of Springhurst
151	Adela of Woodstock Grange	H. D. W. Canobio..	Ayrshire	5,883	4·16	244·88	Combine of Glengowrie
152	Gaiety of Burnbrae ..	Sadler Bros. ..	„ ..	5,921	4·13	244·56	Laura's Laird of Gowrie Park
153	Mascotte of Banyule ..	Lyon and Kerr ..	Jersey ..	4,443	5·48	243·45	Audrey's Lord Twylish
154	Ruby of Springfield ..	J. W. Cochrane ..	Ayrshire	5,895	4·12	242·89	Beauty's Majestic of Glencira
155	Bolobek Jessie ..	O. J. Syme ..	Friesian	6,536	3·71	242·70	Rhoda Prince of Rubicon
156	Victoria Dutch Maid ..	Department of Agriculture	„ ..	6,054	4·01	242·49	Dominion Domino's Dutch Boy
157	Lady Em of Evergreen	H. S. Gibson ..	Ayrshire	6,370	3·80	242·49	General Gordon
158	Modesty of Cathcart ..	W. J. McKernan ..	„ ..	5,205	4·65	242·24	Levendo of Glencairn
159	Lassie of Ayrbrae ..	L. McFarlane ..	„ ..	5,797	4·18	242·08	Harmonist of Ellerslie
160	Audrey's Victress of Somerville	J. Hutchinson ..	Jersey ..	4,585	5·25	241·79	Daphne's Prince
161	Jenny Lind 16th of Melrose	E. A. Denis ..	„ ..	3,822	6·31	241·21	Golden Fern's Viscount
1622	Pearl Queen of Wethersdane	A. H. Schier ..	Ayrshire	6,047	3·99	241·16	His Majesty of Wethersdane
163	Banksia	Department of Agriculture	Red Poll	5,308	4·54	241·02	Belligerent
164	Prue 2nd of Carracoorte	W. Henderson ..	Ayrshire	5,257	4·58	240·94	Lord Dudley of Gowrie Park
165	Mabel of Riverside ..	J. H. Rogers ..	„ ..	5,773	4·16	240·02	Warlock of Fernhill
166	Tottie of Warrook ..	W. C. Greaves ..	„ ..	5,264	4·55	239·56	Triumph of Warrook
167	Bright Stockings of Warenda	O. Cutler.. ..	Jersey ..	4,470	5·32	237·74	Brighton Cub
168	Corona	Department of Agriculture	Red Poll	5,463	4·34	237·21	Nicotine
169	Radiant of Lochenden	W. J. McKernan ..	Ayrshire	4,910	4·83	237·05	Honesty of Ellerslie
170	Boronia of Woodstock Grange	H. D. W. Canobio..	„ ..	5,007	4·69	235·06	Combine of Glengowrie
171	Mayflower 2nd of Carracoorte	W. Henderson ..	„ ..	5,455	4·31	234·84	Lord Dudley of Gowrie Park
172	Morven Duchess of Brunswick 3rd	Kerr Bros. ..	Shorthorn	6,089	3·84	233·87	Manor York Rose 10th
173	Pet of Hillcrest ..	F. Sadler.. ..	„ ..	5,016	4·66	233·44	Morven Charming Duke 6th
174	Heroine 2nd of Springvale	R. C. Campbell ..	Jersey ..	4,491	5·15	231·36	Doreen's Chief
175	Bolobek Diana ..	O. J. Syme ..	Friesian	6,515	3·55	231·01	Johanna Lad
176	Laura of Dunachton ..	R. Hall	Ayrshire	5,618	4·11	230·65	Adela's Jamie of Raith
177	Starbright of Roxburgh	T. Douglas ..	„ ..	5,180	4·45	230·28	Good Lad of Roxburgh
178	Duchess of Hillcrest ..	M. and W. A. Francis	„ ..	4,759	4·85	230·08	Prince of Mapleton
179	Nellie of Cragneill ..	A. W. Jones ..	Friesian	6,276	3·66	229·74	King Mercena
180	Pansy 3rd of Riccarton	J. A. Lang ..	Ayrshire	5,850	3·75	229·49	White Prince of Gleneira
181	Ada of Roscleigh ..	G. Gange ..	„ ..	5,348	4·29	229·47	Burleigh of Gowrie Park
182	Jubilee Wattle ..	Miss B. Reid ..	Jersey ..	4,643	4·93	229·12	Jubilee Fox
183	Milkmaid of Staghorn ..	F. Bidgood ..	„ ..	4,089	5·60	229·01	Favourite's Noble of Kyora
184	Rye Cake	C. D. Lloyd ..	„ ..	3,673	6·23	228·78	Cream Chief of Glen Iris
185	Joans de Kol of Brundee	J. T. Tweddle ..	Friesian	8,113	2·81	228·16	Fanny's King of Rock
186	Bolobek Ida	O. J. Syme ..	„ ..	6,774	3·35	226·76	Rhoda Prince of Rubicon
187	White Bell of Rochdale	E. J. Moore ..	Jersey	4,719	4·78	225·67	May's King of Rochdale
188	Tabitha 2nd of Riccarton	J. A. Lang. ..	Ayrshire	5,493	4·09	224·68	White Prince of Gleneira
189	Lady Grey 14th of St. Albans	H. Luxton ..	Jersey ..	4,445	5·05	224·52	Brighton King 8th
190	Cis of Riccarton ..	J. A. Lang ..	Ayrshire	5,581	4·02	224·18	Royal King of Glenavon
191	Peggy of Woolamai Park	G. A. Kent ..	„ ..	5,256	4·26	224·07	Prince of Mapleton
192	Fox's Fairy	F. Bidgood ..	Jersey	4,006	5·58	223·50	Daisy's Fox
193	Handsome of Lesterfield	A. Jackson ..	„ ..	4,728	4·73	223·46	Quality 6th's Son of Melrose
194	Noorat Cherry ..	Mrs. A. Black ..	„ ..	4,260	5·24	223·15	Milklad of Banyule

HEIFERS—175 LBS. STANDARD—*continued.*

Order of Merit.	Name.	Owner.	Breed.	Milk.	Average Test.	Butter Fat.	Sire.
				lbs.		lbs.	
195	Modesty of Inverleigh	A. H. Schier ..	Ayrshire	4,961	4·49	222·80	Major of Gowrie Park
196	Sparkle 2nd of Carracoorte	W. Henderson ..	„ ..	5,286	4·21	222·48	Lord Dudley of Gowrie Park
197	Lady Bell of Invergordon	C. G. Newton ..	„ ..	4,968	4·48	222·47	Cocky Rab of Gleneira
198	Primrose of Ayrbrae ..	L. McFarlane ..	„ ..	5,252	4·32	222·26	Harmonist of Ellerslie
199	Pearline of Medburn Grove	C. Bamford ..	„ ..	5,309	4·18	222·15	St. Elfred of Willowvale
200	Filpail 3rd of Carracoorte	W. Henderson ..	„ ..	5,154	4·30	221·75	Lord Dudley of Gowrie Park
201	Morven Myrtle 6th ..	Kerr Bros. ..	Shorthorn	5,681	3·90	221·41	Morven York Rose 15th
202	Syringa of Springhurst	J. D. Reed ..	Jersey	3,720	5·90	221·19	Brighton Cub
203	Jessie de Kol Kroons ..	J. T. Tweddle ..	Friesian	5,763	3·84	221·15	Dominion Domino's Dutch Boy
204	Snowdrop of Inverleigh	A. H. Schier ..	Ayrshire	5,179	4·26	220·76	Major of Gowrie Park
205	Lollie of Carracoorte ..	W. Henderson ..	„ ..	5,362	4·11	220·15	Lord Dudley of Gowrie Park
206	Pert Lass of Woodbyrne	J. Benallack ..	„ ..	5,555	3·94	219·86	Bailee of Oakbank
207	Linda of Tuerong ..	A. W. Findlay ..	Jersey ..	4,979	4·39	218·59	Bonnie Lad of Kingsvale
208	Moss Rose 8th ..	F. Sadler ..	Shorthorn	4,844	4·51	218·51	43rd Earl of Pentland
209	Boltonia of Springhurst	J. D. Read ..	Jersey ..	4,405	4·94	218·18	Attraction of Springhurst
210	Peggy 2nd of Riccarton	J. A. Lang ..	Ayrshire	5,254	4·14	217·51	Royal Prince of Glenavon
211	Gertie 4th of Carracoorte	W. Henderson ..	„ ..	4,541	4·79	217·37	Lord Dudley of Gowrie Park
212	Springfield White Posch	Flack and Sewell ..	Friesian	5,503	3·94	216·99	Rosevale Inka Sylvia Posch
213	Floss 4th of Carracoorte	W. Henderson ..	Ayrshire	5,185	4·18	216·89	Lord Dudley of Gowrie Park
214	Countess 2nd of Ashby	Dickinson Bros. ..	Friesian	5,644	3·84	216·83	Bolobek General
215	Emily 2nd of Riccarton	J. A. Lang ..	Ayrshire	5,124	4·22	216·11	White Prince of Gleneira
216	Pet of Riverside ..	J. H. Rogers ..	„ ..	4,829	4·45	214·76	Ian of Gowrie Park
217	Parrot of Glenwood ..	W. Tendeson ..	Jersey ..	4,035	5·28	212·94	Carrie's 5th Noble of Melrose
218	Madge of Holly Green ..	C. Lees ..	Ayrshire	4,035	4·55	212·77	Maxwell of Gleneira
219	Stella of Glen Alvie ..	F. McIver ..	„ ..	4,738	4·49	212·77	Donald of Wethersdane ..
220	Pentland's Bloom 3rd ..	R. Lidgett ..	Shorthorn	5,264	4·02	211·93	Duke of Holm Point
221	Promise of Woodbyrne	J. Benallack ..	Ayrshire	5,241	4·04	211·90	Bailee of Oakbank
222	Briar Rose of Hillcrest	W. M. Vale ..	Jersey ..	4,727	4·47	211·43	Bell Boy of Hillcrest
223	Buttercup 2nd of Carracoorte	W. Henderson ..	Ayrshire	4,316	4·90	211·41	Lord Dudley of Gowrie Park
224	Fairy Bell of Rochdale ..	E. J. Moore ..	Jersey ..	4,216	4·97	211·10	May's King of Rochdale
225	Duchess of Lochenden	W. J. McKernan ..	Ayrshire	5,159	4·09	210·77	Harry of Golden Vein
226	Bellona's Queen of Carracoorte	W. Henderson ..	„ ..	4,500	4·67	210·09	Lord Dudley of Gowrie Park
227	Graceful Countess 2nd of Lesterfield	A. Jackson ..	Jersey ..	3,706	5·67	210·09	Quality 6th's Son of Melrose
228	Waituki Princess Adelaide	A. W. Jones ..	Friesian	5,759	3·63	209·55	Royal Prince Pietertje de Kol
229	Bloomer of Medburn Grove	C. Bamford ..	Ayrshire	5,273	3·96	208·83	St. Elfred of Willowvale
230	Waituki Princess Amy	A. W. Jones ..	Friesian	6,777	3·07	208·38	Royal Prince Pietertje de Kol
231	Brunette of Willowvale	R. Ralston ..	Ayrshire	4,731	4·40	208·08	Gain of Oakbank
232	Bonnie Jean of Invergordon	C. G. Newton ..	„ ..	4,901	4·24	207·71	Cocky Rab of Gleneira
233	Mimulus 2nd of Springhurst	J. D. Read ..	Jersey ..	3,682	5·62	206·94	Petain
234	Pattie of Hillcrest ..	G. Rowe ..	„ ..	4,192	4·92	206·70	Bell Boy of Hillcrest
235	Dainty Maid of Ben Kell	R. Ralston ..	Ayrshire	4,885	4·04	206·64	Marvel of Willowvale
236	Marcella of Inverleigh ..	H. Perdriau ..	„ ..	5,026	4·11	206·33	Jamie of Inverleigh
237	Katinka	G. A. Waite ..	Friesian	6,537	3·15	206·23	Count Togo
238	Ursulla of Burnside ..	L. F. Armstrong ..	Ayrshire	4,260	4·82	205·42	Gregor of Oakbank
239	Peeress of Ben Kell ..	R. Ralston ..	„ ..	4,965	4·13	205·07	Desmond of Ben Kell
240	Tundra	Department of Agriculture	Red Poll	4,394	4·61	203·90	Belligerent
241	Jubilee Tecoma ..	Miss B. Reid ..	Jersey ..	4,425	4·59	203·18	Twylish Maderia's Fox 2nd
242	Myrtle of Colac ..	C. Falkenberg ..	„ ..	3,692	5·50	202·91	Twylish Queen's Fox
243	Brownie 4th of Carracoorte	W. Henderson ..	Ayrshire	4,455	4·54	202·28	Dahlia's Duke of Gleneira
244	Colony	Department of Agriculture	Red Poll	4,464	4·52	201·78	Belligerent
245	Lady Jar 4th of Gleneira	F. McIvor ..	Ayrshire	5,038	4·00	201·18	Jock of Gowan Bank
246	Flower of Rosleigh ..	N. Gange ..	„ ..	4,812	4·16	200·50	Baron of Rosleigh
247	Gladden of La Trobe ..	C. G. Newton ..	„ ..	4,575	4·38	200·42	Darnley of Gowrie Park
248	Rita of Inverleigh ..	A. H. Schier ..	„ ..	5,111	3·91	200·07	Levendo of Glencairn
249	Bertha of Ben Kell ..	R. Ralston ..	„ ..	5,113	3·91	199·97	Desmond of Ben Kell
250	Trixie of Warrook ..	Cockbill and Gibbs	„ ..	4,507	4·43	199·63	Triumph of Warrook
251	Phyllis of Dunachton ..	R. Hall	„ ..	4,702	4·24	199·58	Laurie of Dunachton
252	Gladwyn of La Trobe ..	Sale High School ..	„ ..	4,053	4·92	199·22	Darnley of Gowrie Park
253	Milk-kiss of Inverleigh	A. H. Schier ..	„ ..	4,903	4·06	199·11	Major of Gowrie Park
254	Daisy 2nd of Ferndale ..	D. C. Miller ..	Jersey ..	3,638	5·45	198·47	Lord Grey
255	Minnie of Riccarton ..	W. T. Cullen ..	Ayrshire	4,471	4·43	198·15	Lanius of Willowvale

HEIFERS—175 LBS. STANDARD—*continued*.

Order of Merit.	Name.	Owner.	Breed.	Milk.	Average Test.	Butter Fat.	Sire
				lbs.		lbs.	
256	Dainty's Clementine of Kelburn	Mrs. I. Beard ..	Jersey ..	4,425	4·06	197·48	Music 3rd
257	Countess of Raith ..	Leslie and Gerrand	Ayrshire	4,969	3·96	196·99	Adela's Jamie of Raith
258	Craigneil Witch ..	A. W. Jones ..	Friesian	5,825	3·37	196·60	Medbury King
259	Rose of Medburn Grove	C. Bamford ..	Ayrshire	4,426	4·44	196·39	St. Elfred of Willowvale
260	Filpail 4th of Carracoorte	W. Henderson .	,,	4,764	4·11	195·72	Lord Dudley of Gowrie Park
261	Moel of Langley Park ..	Callery Bros. ..	,, ..	4,528	4·31	195·43	Plawaway of Willowvale
262	Daisy of Colac ..	C. Falkenberg .	Jersey ..	3,355	5·82	195·21	Twylish Queen's Fox
263	Blanche of Glen Alvie ..	H. Perdrian ..	Ayrshire	5,335	3·62	194·43	Donald of Wethersdane
264	Noreen of Golden Vein	W. McIvor ..	,, ..	4,578	4·21	192·57	Earl of Golden Vein
265	Charity of Raith ..	Leslie and Gerrand	,,	4,684	4·08	191·23	Adella's Jamie of Raith
266	Agnes of Holly Green ..	H. L. Webb ..	,, ..	4,873	3·87	188·68	Maxwell of Gleneira
267	Margaret's Fancy of Somerset	A. E. Batson .	Jersey ..	3,584	5·26	188·63	Admiral
268	Ideal of Ben Kell ..	R. Ralston ..	Ayrshire	4,866	3·87	188·50	Marvel of Willowvale
269	Waluiu Abbekerk Artis of Corfield	Flack and Sewell ..	Friesian	5,278	3·28	188·14	De Kol Artis Rooker
270	Nyasa	Department of Agriculture	Red Poll	3,834	4·90	187·85	Belligerent
271	Tulip of Burnbrae ..	Sadler Bros. ..	Ayrshire	4,269	4·38	186·82	Bonnie King of Gowrie Park
272	Fine Quality of Inverleigh	A. H. Schier ..	,, ..	4,025	4·63	186·58	Kia Ora of Haydowns
273	Prudence of Roxburgh	A. H. Schier ..	,, ..	5,354	3·48	186·47	Good Lad of Roxburgh
274	Oatlands Nancy ..	J. Thorburn ..	,, ..	4,588	4·03	184·94	Malster of Seafield
275	Olive Berry of Glenbrae	M. and W. A. Francis	,, ..	4,323	4·26	184·03	Warlock of Fernhill
276	Noorat Deception ..	Mrs. A. Black ..	Jersey ..	3,714	4·95	183·81	Milklad of Banyule
277	Fancy of Fairview ..	A. E. Haughton ..	,, ..	3,571	5·12	182·94	Jolly Mike
278	Good Luck of Glenora ..	Cockbill and Gibbs	Ayrshire	4,353	4·20	182·92	Good Lad of Roxburgh
279	Laura 4th of Carracoorte	W. Henderson ..	,, ..	3,998	4·57	182·55	Lord Dudley of Gowrie Park
280	Lustre of Riccarton ..	W. T. Cullen ..	,, ..	4,418	4·12	182·14	Lanius of Willowvale
281	Rocket of Rubbank ..	Miss L. Robinson ..	Jersey ..	3,220	5·64	181·59	Kyora's Lotina's Financial King
282	Jessemia 13th of Kingsvale	F. W. Blescher ..	,, ..	3,506	5·16	180·93	Bonnie Lad of Kingsvale
283	Silvermine of Elouera ..	J. Scott	,, ..	2,705	6·66	180·35	Lord Silvermine 8th of Banyule
284	Flower of Raith ..	Leslie and Gerrand	Ayrshire	4,254	4·22	179·46	Adela's Jamie of Raith
285	Daffodil 2nd of Jerseyvale	Mrs. L. Orchard ..	Jersey ..	3,532	5·08	179·31	Golden Twylish
286	Morven Duchess of Brunswick 2nd	Kerr Bros. ..	Shorthorn	4,703	3·80	178·73	Manor York Rose 10th
287	Dairy Lass of Carracoorte	W. Henderson ..	Ayrshire	4,294	4·15	178·14	Lord Dudley of Gowrie Park
288	Lily of Jersey Vale ..	Mrs. L. Orchard ..	Jersey ..	3,735	4·76	177·91	Golden Twylish
289	Cinderella of Burnbrae	Sadler Bros. ..	Ayrshire	5,211	3·41	177·60	Bonnie King of Gowrie Park
290	Stella of Riccarton ..	W. T. Cullen ..	,, ..	3,927	4·51	177·25	Lanius of Willowvale
291	Violet 9th of Rocklee ..	Mrs. F. M. Akehurst	Jersey ..	3,103	5·71	177·23	Carnation's Fancy Northwood King
292	Purity 5th of Melrose ..	W. Woodmason ..	,, ..	2,932	5·93	176·98	Golden Fern's Viscount
293	Jessamine of Springhurst	J. D. Read ..	,, ..	3,403	5·19	176·66	Brighton Cub
294	Morven Duchess of Brunswick 19th	Kerr Bros. ..	Shorthorn	4,605	3·83	176·26	Charming Duke

IMPACTION PARALYSIS OF CATTLE.

By H. R. Seddon, D.V.Sc., Veterinary Institute, University of Melbourne.

Symptoms and Possible Causes.

The disease condition of cattle known as Impaction Paralysis has existed in Victoria for a number of years, but until recent investigations were made the actual cause remained obscure.

It was pointed out long ago that the term "Impaction Paralysis" was really a misnomer. Paralysis there certainly is, a paralytic condition of the throat being the chief symptom seen in acute cases; while impaction of the food in the stomachs and bowels also occurs. Such an impaction, or perhaps more correctly, a *stagnation* of the food in the alimentary canal, however, is the effect and not the cause of the paralysis.

This paralysis affects not only the muscles used in eating and swallowing food, but also the muscles of the paunch (and other stomachs) and the bowels. Thus, food swallowed before the animal develops the throat paralysis is not passed on through the bowels, nor is it re-masticated, but simply remains where it is; the animal does not "chew the cud." Though the sick animal requires water to refresh the tissues of the body, it is unable to get it by drinking, as it is unable to swallow, and in consequence the body withdraws all it can from the food in the bowels. The tendency is, therefore, for such food to appear unduly dry, and such an appearance is usually exaggerated by the fact that the food when eaten was very dry, the disease occurring chiefly when the grass is dried up and rather innutritious.

Thus we see that, as pointed out, first by Dr. S. S. Cameron (now Director of Agriculture, but then Chief Veterinary Officer), the apparent impaction is the *result* and not the *cause* of the disease. What then brings about the paralysis? Recent investigations conducted at the University Veterinary Institute have led to the isolation of a bacterium, apparently new to science, which it is believed is the cause of the disease. This microbe (a rod-shaped germ or bacillus) produces a very powerful toxin, and administration of this toxin (or bacterial poison) causes paralytic symptoms identical with those met in Impaction Paralysis. Thus, the animal is seen to gather food only with great difficulty, to slobber, and to present a general drowsy appearance. Later it can neither eat nor drink, and becomes unsteady in its walk; finally it goes down, is unable to rise, and ultimately dies.

Though the cause has been elucidated it remains to be determined how and when this toxin is developed; in other words, how animals contract the disease.

A similar disease occurs in South Africa, and investigations there have led to the similar conclusion, that it is due to a toxin produced by bacteria, but the actual bacterium has not yet been identified. It has been found, however, that such a toxin is present in the decomposing carcases of animals that have died of the disease, and also in the carcases of animals dying from other causes on infected properties. Further, it has been demonstrated that this toxin is present also in the bones of such carcases. From the fact that the "bone-chewing habit" is so prevalent amongst animals suffering from the disease, it is believed

in South Africa that cattle contract it by chewing bones. The chewing of bones is there looked upon as being caused by depasturing cattle on soils possibly deficient in certain chemical constituents. The paralytic condition, therefore, is considered to originate from two causal factors:—(1) The habit of chewing bones, and (2) the presence of the toxin in the bones chewed.

The particular bacterium isolated here in Australia was obtained from a bone of an animal that had died of the disease, and hence it would seem that the disease might be contracted by chewing bones, as is suggested by these South African investigations.

It is doubtful, however, whether this craving for bones should always be looked upon as due to a deficiency in the food; indeed, some consider that at times it may be nothing more than a habit, induced often through idleness. Nevertheless, owing to the danger of animals picking up infected bones, such a habit should be prevented if possible. It is a well-known fact that it can be prevented in very large measure by supplying animals with suitable licks, and such should, therefore, be provided. Further, bones of all carcasses should be destroyed, by burning if possible. This is not always feasible owing to the absence of timber, or again the dry state of the grass may render it highly dangerous owing to the risk of the fire spreading. In such cases, however, it should be remembered that carcases may be a source of danger, and they should be destroyed as early as possible. It may be mentioned that on several occasions lately cases have been traced to animals gaining access to local "cemeteries"—situations to which owners have thoughtfully dragged carcases to await the autumn rains, so that in burning them there would be no risk of starting a bush fire, and where they remained forgotten when the rains have come.

Attention to these two factors (destruction of bones and the provision of licks—recommended by the Agricultural Department as "good animal husbandry") has no doubt been responsible for the great diminution in the number of cases of Impaction Paralysis in Victoria during recent years.

Whilst we know that bones may be a grave source of danger, it is not possible to state that cases of Impaction Paralysis are due *always* to the eating of bones. At times there have occurred cases wherein it would appear that there might be some other method of infection, and the help of stock-owners is therefore sought in order that this phase of the problem may be investigated. The discovery of cases, wherein the possibility of animals having contracted the disease by chewing bones can be eliminated, is not as easy as it would seem. Especially is that so on large properties, for a few stray bones lying about may easily be overlooked. Further, the bones need not necessarily be *cattle* bones, for there is reason to believe that the toxin might be produced in *any* putrefying carcase, and here there seems to be support for an old theory that the disease might be contracted by animals eating the carcases of poisoned rabbits. In such a case, however, the poison causing the Impaction Paralysis would not be the poison which led to the death of the rabbit, but a poison (toxin) produced by the growth of certain bacteria in the decomposing carcase of the rabbit.

As evidence of the fact that bones of other animals than cattle may contain the toxin, and so cause the disease, the following may be quoted:—Over eighteen months ago an outbreak of what appears to

have been the same disease occurred in Western Australia, and it was noted on *post-mortem* examination that some sheep bones were present in the paunch of the cattle affected. These bones were evidently from the carcases of sheep that had died of an unknown complaint six months previously. In June of this year some bones were, at my request, secured from these sheep carcases, and though they had lain on the ground for over two years and were well leached, examination showed one of them to contain a toxin-forming micro-organism, apparently identical with that found in other bones here.

It is unlikely that the sheep died of Impaction Paralysis, as such animals are not given to chewing bones. The probability is that they merely provided a breeding ground for the microbe which flourished in their carcases, and so led to the bones of the sheep becoming toxic.

It may be wondered how it is that carcases of animals that have died of other diseases can contain the toxin. There are two possible explanations. The first is that flies may carry the causative microbe from an infected decomposing carcase to an otherwise healthy one. The second is that, as the microbe may remain in the soil on infected properties in much the same manner as do similar germs in the case of Anthrax and Blackleg, it is possible that an animal may pick up the microbe with the feed as it grazes. It is not certain whether microbes picked up under such circumstances can cause the disease, for they may be harmless whilst remaining in the intestine. If, however, that animal with the microbes in its bowels dies, from any cause whatever, such microbes might, after the death of the animal, invade the carcase, even the bones, and then and there produce their toxin.

Similarly, one cannot state that *all* decomposing carcases contain the toxin (in fact, on several occasions I have been unable to find it present), but as neither carcases nor bones containing the toxin differ in outward appearance from what one may call harmless carcases or bones, it is advisable to *treat all with suspicion* and to accomplish their destruction.

Treatment.

Prevention of the disease having been discussed, it now remains only to consider treatment, and the old adage "prevention is better than cure" holds here. The nature of the microbe and its toxin does not hold out any hope of a vaccine or anti-toxin being of any very great service as a cure. The toxin which causes the paralysis is quickly absorbed from the bowels and becomes fixed in the brain stem, and when in that condition cannot be satisfactorily combated by any known method of treatment.

In the early stages, whilst the animal is still able to swallow, a purgative drench removes toxin still present in the bowel, but, as the toxin is generally absorbed into the system some time before symptoms are manifested, such treatment cannot be expected to effect a cure in all cases. Suitable medical treatment by a qualified veterinary surgeon, and, above all, the provision of liquid or sloppy food (milk, &c.) as long as the animal is able to take it, helps an animal to sustain an attack. Great care must be taken in drenching, as once the paralysis of the throat occurs the medicine instead of being swallowed is liable to "go down the wrong way," entering the wind-pipe, and causing death suddenly from choking or later from pneumonia.

Conclusion.

From the above it will be seen how important it is that the possible avenues of infection should be definitely ascertained, in order that all possible preventive measures may be taken, and to that end further experiments are being undertaken at the University Veterinary Institute. The co-operation of the stock-owner is also required, and particulars of any cases where it seems impossible that the animals contracted the disease from chewing bones or other portions of decomposing carcases would be most welcome.

As many cases may be noticed on properties a considerable distance from Melbourne, and it may not be possible for me to inspect them personally at the moment, it is requested that particulars of such be sent to the Chief Veterinary Inspector, who has courteously promised to conduct, through his staff, the necessary preliminary investigations.

It is especially desired that such cases should be notified immediately they are noticed, as investigations then would offer the greatest chance of success.

FOUNDING A PIG HERD.

By R. T. McKenzie, Senior Dairy Supervisor.

Pig breeding still maintains its place as an exceedingly profitable adjunct to dairy farming. The fecundity of the pig is astonishing, and it is without question the most economical farm animal.

It has been estimated that the natural increase among cattle is about 80 per cent., sheep 100 per cent., and pigs 1,500 per cent. per year. It has long been established that pigs produce more edible meat from a given quantity of food than any other farm animal. While it requires 13 lbs. of dry matter in the form of feed to secure a gain of 1 lb. of beef in cattle, 8 lbs. of food for a gain of 1 lb. of mutton, in the pig 4 or 5 lbs. of grain will produce 1 lb. of pork.

When killed, sheep dress about 60 per cent. dead weight, cattle 65 per cent., pigs 80 per cent.

The carcase proportion of edible meat to bone in the pig is much greater than in the case of either sheep or cattle. In the process of developing a pig herd it is undoubtedly preferable to commence with a pure breed. The particular breed best suited to local conditions can be determined by the breed common in the locality and market demands. The Berkshire and Middle Yorkshire appear to be the most favoured in this state, but the Large York has proved best for bacon and pork production and a boar of this breed should be used even on sows of others breeds. The Large Boar matures early and gives a greater proportion of lean meats than most other breeds. Some farmers who keep but few pigs and raise only a few litters seem to think that it is not worth the trouble to insure that those few should be pure breds. It is contended that in the market it makes little difference in the price whether the animal is a pure bred or otherwise. That may be so, but the vital point overlooked is that it takes the "scrubber" and the grade pig a longer time to gain a given weight than it does the pure bred, and consequently there is a saving in time, labour, and feed. It costs very little more to establish a pure bred herd; in fact, the only additional expense is the difference

in the cost of the foundation herd. Equipping the piggery, labour and attention will be the same in both cases, but it is safe to say that the extra return from the pure breds as against a mongrel herd would wipe out that additional cost in the first couple of years.

SELECTING THE SOW.

There are many points to be considered in selecting a brood sow. Where it is convenient, the best plan is to choose the sow at the owner's farm, so that she can be seen in her usual habitat and condition. As fecundity is hereditary, it is important to find out her family history, the prolificacy of her dam and great dam on both sides of the pedigree. She should be fairly big and roomy, showing signs of good constitution, with at least twelve fully developed teats of good size, placed well apart, with the front teats well forward on the body. An equable temper is desirable, a bad-tempered sow rarely makes a good mother, while the progeny are sometimes so irritable in the fattening pens that they will not allow any other pigs with them to eat, rest, or sleep. Contentment is a sure sign of health and constitution. The sow which makes the best mother is contented, and after she has satisfied her appetite will lie down contentedly and suckle her young.

There are other desirable qualifications in her conformation, such as well-sprung ribs, arching back from the vertebræ, giving a flat, straight side, well finished rump and hams, legs of medium length well set apart, pasterns upright, so that the animal walks on its toes. Plenty of straight silky hair.

SELECTING THE BOAR.

It is advisable when purchasing a boar to go to a breeder who has made a reputation, for he, in order to maintain his good name, can be relied upon to supply a good animal. The boar should have individuality as well as pedigree. Size is not the chief consideration.

It has been found that a very large boar does not last long, he becomes too ponderous for the sows, slow, and his litters few in number. As in the case of the sow, his family history should denote that he comes from parents that beget plentiful litters. It is also essential that he should possess an even temper and not be lethargic.

Temper, like prolificacy, is hereditary, hence its importance in breeding. It is not wise to use the boar too freely until the quality of his progeny can be judged.

Constitution is of vital importance, for any defect in that respect will probably be imprinted in his offspring.

The procreative organs should be well developed, as it denotes constitutional vigour, and his rudimentary teats should be numerous and well developed.

Conformable points such as width of back as well as being level and strong, forelegs well set apart, thickness through heart region, a good coat of hair of fine texture, must also be taken into account.

BREEDING.

Both the boar and the sow should be mature before they are mated. From eight to ten months at least. If the sow is used earlier her growth will be checked and seldom become a large vigorous specimen of her breed; moreover, she will most likely breed weakly pigs. Although liberal feeding and attention may to some extent remedy the ill-effects of early

pregnancy and early lactation, it is better to avoid the cause. Similarly in the case of the boar, if he is used too early his growth will be retarded and his sexual activity diminished. For that reason the practice sometimes followed of mating an immature boar with an old sow cannot be commended.

The boar should be kept in a special enclosure and not permitted to run with the sows. During the period of heat the sow can be removed to the boar's sty, and after one complete service removed. If the service is unsuccessful, the sow will return in 21 days. The period of gestation is 4 months.

The pregnant sow should be allowed plenty of exercise. Nature never designed the pig to be kept in confinement, yet it is possibly more than any other domestic animal denied suitable exercise. Proper exercise comes next in importance to food. The increased respiratory activity due to exercise means two or three times more the volume of oxygen passing through the lungs as when the animal is denied exercise. This increased vitality means a larger and stronger muscular system, active liver, better digestion and health.

Generally the sow has no difficulty in farrowing, and should not be interfered with without serious cause. It is better to destroy any weakly pigs at birth. The "runt" is not worth bothering with.

It depends a good deal upon the treatment of the sow during her gestation period whether she produces a good healthy litter with a plentiful supply of milk for them, or a litter of weakly pigs and a small flow of milk. She should be fed on good nutritious food to maintain her own condition and develop the unborn pigs. With rational feeding and exercise prior to parturition it is a rare occurrence that a sow will eat her young. Successful pig rearing depends largely on the piglings starting off well. The first week or two the mother's milk is practically all that is required; for that reason the feeding of the sow must be calculated to maintain a good flow of milk to nourish the litter. If the sow is allowed to get low in condition and health, her milk supply lessens both in quality and quantity, and the litter suffers in consequence. Gradually the little ones may be taught to drink by themselves; the ration should be one easily digested and approximating as nearly as possible to the mother's milk. Skim milk with the addition of a small quantity of fatty food (such as oil cake) to take the place of the fat separated is very suitable.

Improper feeding a few weeks before and after weaning seriously hampers the later development of the pig. As a rule, the little pigs manifest a desire to eat when they are two weeks old. A little grain either crushed or soaked previously can be placed on a clean bottom for them to pick and chew at. It is not always recognised that the pig is as much an herbivorous animal as the horse or the ox. Grass and green stuff are valuable aids to digestion, and should form a part of the ration. It is not a profitable proposition, although it is often followed, to allow the young pigs to become stores. The objective should be to fatten the pig from the time it is born, for it has been found from experience that a young pig has greater digestive power and can assimilate food more easily than an old one; furthermore, the bacon is more valuable, as there is a greater proportion of lean to fat.

Pigs should always have access to a plentiful supply of clean water.

REMINDERS FOR OCTOBER.

LIVE STOCK.

Cattle.—Except on rare occasions, rugs may now be used on cows at night only. Continue giving hay or straw, if possible, to counteract the effect of green grass. Be prepared for milk fever. Read article in *Year-Book of Agriculture*, 1905, page 314. Give calves a dry shed and a good grass run. Continue giving milk at blood heat to calves. Be careful to keep utensils clean, or diarrhœa will result. Do not give too much milk at a time for the same reason. Feed regularly with regard to quantity and time. Give a cup of limewater in the milk to each calf, also place crushed oats or lucerne hay in a trough so that they can eat at will.

Sow maize for summer feeding and ensilage, also Japanese millet for grazing during dry summer months. Mow surplus grass for hay. If cut when the grass or trefoils are in bloom, grass hay will be as good fodder as any cerial hay. If top-dressed with phosphatic or farm yard manure, good returns will be obtained from grass hay; it has also the great advantage that mice will not work in it Cut 1 acre for each cow in the herd; it will keep until the next drought if protected from the weather.

Pigs.—Supply plenty of bedding in warm, well-ventilated styes. Keep styes clean and dry, and feeding troughs clean and wholesome. Sows suckling young should be well fed to enable them to produce plenty of milk. Give young pigs pollard and skim milk in separate trough as soon as they will take it, and keep them fattening from the start to get them off as early as possible. Give a tablespoonful of bone meal, or half that amount of mineral phosphate, per 100 lbs. live weight in food daily. If pigs are lousy dress them with kerosene emulsion or sulphur and lard, rubbing well into the crevices of skin, and disinfect styes. Pig breeding and feeding should be very profitable for a long time to come, and it should be safe to launch out now.

Revised edition of Bulletin 16 is now available.

Sheep.—Shear as early as the weather will permit, and avoid the usual excessive dust in travelling to, and yarding at sheds. Burr and seeds also collect on the fleeces if shearing be left until late in the season, particularly with lambs. Shear all lambs intended to be held over—they thrive better and make more growth through the ensuing summer and autumn. Fleeces from well-bred sheep should be skirted with care, the better the class of wool the greater the necessity. From fleeces that have become dry and earthy on the backs, remove only the merest stains; there is little advantage in skirting these. It is better management to have ample table space, and extra hands skirting closely, than to hastily tear off unnecessary wool and then employ men at other tables to sort "broken fleece," "first," and "second" pieces, &c. All stains must be removed from ewes' fleeces, and pizzle stains from the bellies of wethers. Keep separate all coarse fleeces from the finer sorts, and in merinos the yellow and mushy from the shafty and bright. Skirt all hairy thighs from crossbred fleeces. Avoid sending wool to market in long, round-sided bales, known as "sew-downs." Press in a box-press, forming square sides. Brand bales neatly, on one side only, and not with sheep-branding oil, tar, or paint. Stencil plates and branding ink can be obtained on application to the respective brokers.

Poultry.—Incubation should cease this month—late chickens are not profitable. Devote attention to the chickens already hatched; avoid overcrowding. Feed with dry mash. Also add plenty of green food to ration; ordinary feeding to be 2 parts pollard, 1 part bran, and a little animal food after the first fortnight. Feed ground grain, such as wheat, hulled oats, maize, and peas, which should be fed in hopper to avoid waste. Grit or coarse sand should be available at all times. Variety of food is important to growing chicks; insect life aids growth. Remove brooders to new ground as often as possible; tainted ground will retard development.

NATIONAL MUSEUM MELBOURNE

HIGH-GRADE TESTED

Re-Machine Cleaned

AGRICULTURAL SEEDS

GIVE BEST RESULTS

Sow Now

Lucerne

The ideal fodder crop. No farmer should be without a paddock.

HUNTER RIVER.—Guaranteed True (N.S.W. Grown) New Season's Seed. 3/- per lb. Special quote large quantities.

FRENCH PROVENCE.—Imported (Guaranteed true). Successive tests show germination of 95% and over. 3/- per lb.; 2/9 per lb. in cwt. lots; 2/8 per lb. in 300 lb. lots or more.

NEW ZEALAND.—Very hardy, upright, broadleaf. Large quantities of Hunter River Lucerne has been imported into New Zealand during the last few years. The seed we have is no doubt the produce of same. 2/9 per lb.; 2/8 per lb. in 300 lb. lots or more.

Sudan Grass

The Wonderful Drought-resistant Summer Fodder.

Produces a higher yield of forage under drought conditions than any other Summer plant. If sown early, 4 cuts can be made per season. Cattle eat the grass readily, there being an immediate increase in the milk yield, and a decided fattening of sheep and cattle. Sow 5 to 7 lbs. per acre in drills, or 15 to 20 lbs. broadcast.

Adaptable to all climates and will grow on any soil.

Special Imported American, re-cleaned seed. 6d. per lb.; 50/- per cwt. Colonial seed, 5d. per lb.; 40/- per cwt.

Visit our Stand No. 192
Royal Agricultural Show

Rape

THE FOOD FOR SHEEP

A highly Nutritious and Palatable Green Feed

Somner's "Tip-Top" Strain Giant Kangaroo Rape (will fatten three more sheep per acre than other kinds) 1/- lb.; 93/4 cwt.

Dwarf Essex.—Imported English (True), 9d. lb.; 70/- cwt. **Dutch,** 9d. lb.; 70/- cwt. **New Zealand,** 7d. lb.; 60/- cwt.

Japanese Millet

Excellent for fodder, rapid grower, very productive. Sow 8 to 10 lbs. per acre in drills, or 15 lbs. broadcast.

Extra Quality Re-machine Cleaned, 4d. lb.; 32/8 cwt.

Prime, Farmers' Dressed, 4d. lb.; 28/- cwt.

Sheep's Burnet

GREAT DROUGHT RESISTER. A MOST VALUABLE FOOD FOR SHEEP.

Thrives well on rich or poor land, either on flats or hills, and is perennial. A superior fodder, very suitable for dry country. Sow 20 lbs. per acre. 1/- per lb.; 100/- per cwt.

IMPORTANT TO FARMERS

One of the principal reasons why weeds are not brought under better control on many farm lands is because the seed sown has not been thoroughly machine cleaned.

Beware of seeds of inferior quality offered at low prices.

There is no sense in buying poor seeds which contain weeds.

We have the finest seed-cleaning machinery, expert knowledge of the trade, and a reputation of 72 successful years of business to maintain.

Our seeds are pure and show the highest germination.

Remember—It pays to buy only the best re-machine cleaned seed —FREE FROM WEEDS. When placing your order be sure you get Law, Somner's machine-cleaned, tested, pedigree seeds.

LAW, SOMNER Pty. Ltd.

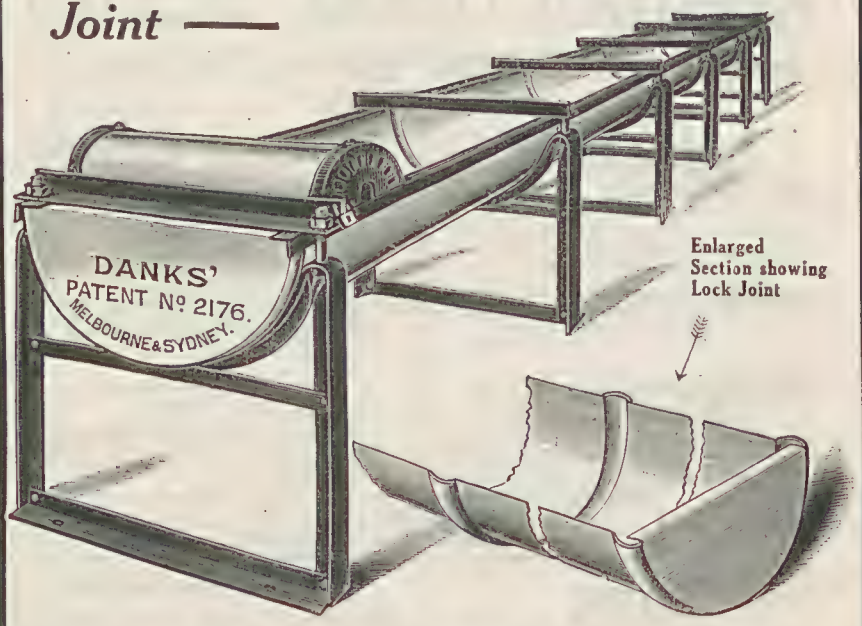
Established over 72 Years

Seed Merchants and Nurserymen

139-141 Swanston Street, Melbourne

The leading Agricultural Seed House in Victoria

No other Troughing can have this LEAK-PROOF Joint ——



"BILLABONG" Patent Troughing

is the dependable kind. The interlocking, grooved joint cannot crack nor pull apart, and fits together so perfectly that Summer or Winter make no difference—the "Billabong" Trough will hold its full capacity in all weathers without leaking.

"Billabong" Patent Troughing is made to stand rough usage and hard bumps. It is easily assembled and fitted into its strong, rigid frame of heavy Angle and T Steel. Its simplicity of construction enable us to sell it at the same prices as are asked for quite ordinary troughing. A special type is made for Pigs.

Write for Illustrated Descriptive Leaflet "S.3"

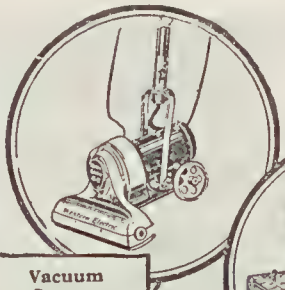
JOHN DANKS & SON PTY. LTD.

DANKS

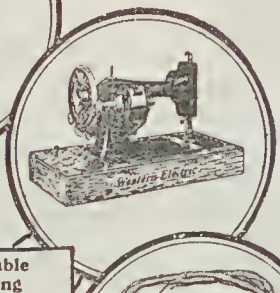
391-403 BOURKE ST. MELB.

and at 324-330 Pitt St., Sydney

Dishwasher and Kitchen Table



Vacuum Sweeper



Portable Sewing Machine

Electric Iron

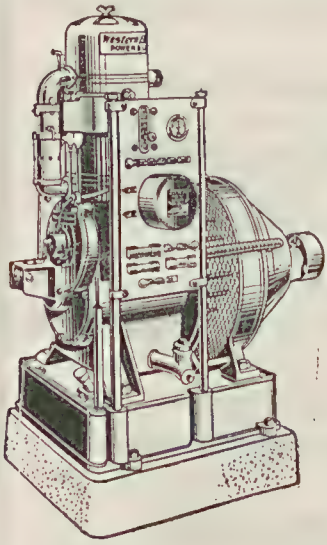
Four

extra reasons why you should have

Western Electric

POWER & LIGHT

ELECTRICITY on the farm becomes a hard-working money-saving service when you instal Western Electric Power and Light. This plant supplies plenty of electric light, using for fuel about the same amount of kerosene as you now use for dirty, dangerous lamps. In addition it is a dependable, tireless house-worker.



Generator, 1500 Watts; Battery, 288 ampere-hours (S.A.E. Rating); Engine, 3¼ H.P., Kerosene driven. Air cooled. Splash oiled. Throttle governed. Automatic Regulator Control.

W.E. 665

Study the Appliances above.

Dish Washer, Vacuum Sweeper, Portable SewingMachine, and Iron—all operated by "Western Electric." Get our 20-page illustrated book which fully explains everything. Post the coupon to-day and mark the other booklets you want.

C. R. FOSTER,

Western Electric Agent for Victoria,

262 Flinders Lane, MELBOURNE

Cut Out and Post To-day

Please send the Booklet marked:

W. E. Power & Light
W. E Clothes Washer
W. E Dish Washer
W. E. Vacuum Sweeper
W. E. Sewing Machine
W. E. Griller & Toaster
W. E. Electric Iron

Name.....

Address.....

Electric Light where you want it, with —

DELCO-LIGHT

Even though you live in the depth of the country you can have the comfort and conveniences of the city. You can have the electric light in your Home, Farm Buildings or Store, and more—you can have power enough to drive all your small machines and your electric household appliances, such machines as Grindstone, Vacuum Cleaner, Iron, House Water Pump, Electric Cooker, Separator, Churn, Fan, &c. Think what this saves you in time and labour. Think what it saves your wife in work and worry.

All this you can have by installing a Delco-Light, the simplest and neatest, complete, self-contained Electric Lighting Plant. It is so simple that any intelligent child can start it. It is most economical because it works on Kerosene, and needs practically no attention except a very occasional oiling. Delco-Light has an air-cooled engine that runs automatically when started, and goes on running till you stop it. It does not easily get out of order. You can have all this extra comfort and convenience.

27 DIFFERENT SIZED PLANTS

WRITE NOW FOR PARTICULARS

WARBURTON FRANKI (Melbourne) Limited

380 BOURKE ST., MELBOURNE

PARSONS BROS. & CO.

Propy. Ltd.

OATMEAL, SPLIT PEAS, and
PEARL BARLEY MILLERS
and "CORNINA" MANUFACTURERS

ARE

BUYERS of OATS, PEAS, BARLEY, and MAIZE.

SEND SAMPLES OF YOUR GRAIN TO US.

BOX 2514,
G.P.O., MELBOURNE.

THE STATE SAVINGS BANK
CREDIT FONCIER

Loans on Farms

Up to two-thirds of valuation in sums from £50 to £2,000, repayable by instalments spread over a period of 26½ years. Interest 6½ per cent. per annum.

Special Terms for Discharged Soldiers and Dependants, also those who were in **Red Cross** and **Transport Services,** up to three-fourths of valuation, repayable by instalments spread over a period of 29 years. Interest 6¼ per cent.

NO CHARGE FOR MORTGAGE DEED

Application forms obtainable at any Branch of the State Savings Bank.

State Savings Bank,
Head Office—Elizabeth Street, Melbourne

— **GEO. E. EMERY,**
Inspector-General

DOOKIE AGRICULTURAL COLLEGE

Provides Special Facilities for Practical and Scientific Agricultural Education

Notable Agriculturists say that this College offers the best agricultural education and practical training in the world

TERMS COMMENCE MARCH AND SEPTEMBER — STUDENTS MAY BE ENROLLED AT ANY TIME

Alternative Courses—
(a) Diploma Course .. Three Years.
(b) One Year's Course.

Total Fees—
£35/5/- per annum.

The college contains modern and well equipped laboratory and lecture hall, single bedrooms, recreation and sports grounds.

Of the 5,913 acres of farm land at Dookie, 1,000 acres are put under crop by students each season; and champion prizes were won for sheep and pigs at the Royal Agricultural Society's Show.

FARM SUBJECTS.—Agriculture, Animal Husbandry, Poultry, Fruit Growing, Butter Factory Management, Building Construction for Farmers.

EACH BRANCH UNDER SPECIALLY TRAINED EXPERTS

LONGERENONG AGRICULTURAL COLLEGE

TERMS COMMENCE MARCH AND SEPTEMBER

This College is specially adapted for Junior Students from 14 years of age

AREA OF FARM, 2,336 ACRES

MAIN BRANCHES OF FARM WORK.—Grain Growing, Fat Lamb Raising, Dairying, Irrigation of Fodder Crops, Fruit, &c.

Total Fees—£35 per annum.

Full particulars obtainable from T. J. PURVIS, Esq., Secretary, Council of Agricultural Education, Public Offices, Melbourne, or the Principals of the Colleges.

WATER SUPPLIES

This illustration shows Three 25 ft. Alston Windmills on 60 ft. Towers, fitted with 10-in. Pumps, pumping water for the town supply of Donald. They have been in use for many years, giving every satisfaction.

We manufacture Windmills in all sizes, from 5 ft. to 25 ft. diameter, and have the largest works in Australia, devoting its whole attention to windmill construction.

Over 50,000 Alston Mills now in use throughout Australasia.
Expert advice and Illustrated Catalogue free on application.

We will be pleased to mail to any address specifications and prices for Windmills suitable for any requirements, whether pumping for the smallest cottage or a town supply. Our experience of over half a century in manufacturing and erecting Windmill Pumping Plants places us in a position to supply the most suitable Mills for all purposes.

JAMES ALSTON & SONS PTY. LTD.

QUEEN'S BRIDGE, MELBOURNE, AUSTRALIA

THE

Farmers & Settlers' Co-Operative Insurance Co.

OF AUSTRALIA LIMITED

The only Co-Operative Fire Insurance Company in Victoria Owned and Controlled directly by the Farmers and Graziers

OVER 6,000 FARMERS AND GRAZIERS ARE SHAREHOLDERS IN THE FARMERS AND SETTLERS

You can only share directly in the Profits of an Insurance Company when you are a Shareholder

The Farmers and Settlers is Supported by different Co-Operative Trading Companies in Australia, representing 75,000 Shareholders

Over £13,000 has been distributed in Dividends to Farmers and Graziers in the past few Years

FARMERS AND GRAZIERS, SUPPORT THIS COMPANY WITH ALL YOUR INSURANCES, WHEN DIVIDENDS AND BONUSES TO YOURSELVES WILL BE INCREASED CONSIDERABLY

Full Particulars from any Agency of the Victorian Producers' Company, or H. L. CARROLL, Manager, 360 COLLINS ST., MELBOURNE.

DO YOU NEED A WINDMILL?

Provided the Mill you install is an **"ALSTON"** you are assured of ample supplies of water.

The "ALSTON" Enclosed Double-Geared Self-Oiling Windmills

Represent the most improved type in Windmill construction.

Fitted with all machine-cut Gears, you are assured, not only of quiet running, but of much longer and better service than can be obtained with ordinary cast pinions and gear wheels. The teeth mesh evenly, and will last for an indefinite period.

This is only one of the many BETTER points of the "ALSTON" Windmill. Superior strength of tower, the adjustable speed regulator, and steel ball-bearing turntable are other features that deserve your consideration.

Don't decide on YOUR plant without inquiring about the "ALSTON." It will pay you.

Free Illustrated Catalogue and Price List will be posted on receipt of your application.

JAMES ALSTON & SONS PTY. LTD.

Queen's Bridge, Melbourne, Australia

BANYULE JERSEYS.

BANYULE JERSEY STUD

ALL GOVERNMENT TESTED

Heidelberg, Victoria :: 8 miles from G.P.O., Melbourne

Combining the blood of "Brighton King," "Mabel's Chief," and "Audrey's Twylish"

Recently Imported **WOTTON AIRMAN** Son of "Dairymaid," Champion of England

YOUNG STOCK FOR SALE

Correspondence welcomed. Inspection appreciated.
Inter-State trading a speciality.

C. G. Lyon and R. R. Kerr, "Banyule," Heidelberg

SPECIAL PRIZES

Most Successful Exhibitors, Royal Shows, Melbourne, 1920-1921

By Authority: Albert J. Mullett, Government Printer, Melbourne.

DEPARTMENT OF AGRICULTURE, VICTORIA

Red Poll Dairy Herd

The Department will shortly have completed the orders for calves that were booked ahead of calving when the advertisement was withdrawn; consequently the booking of orders for bull calves from the forthcoming calvings has now been resumed.

BULL CALVES are sold for delivery at a month old at prices based approximately on the actual milk and butter fat record of the dam at the rate of 1s. per lb. of butter *fat* yielded.

(For Record of Yields of dams see Red Poll Herd Book.)

The Bulls in Use include—

LONGFORD MAJOR (Imported)

Dam's Record 14713 lbs. milk ... 6 years average 11338 lbs. milk
G. Dam's ,, 10548 ,, ... 4 ,, ,, 9135 ,,

BELLIGERENT (Imported)

Dam's Record (1st milking) 7144 lbs. milk.

Dam's Dam's	,,	14533 lbs. milk	...	4 years	average	12871 lbs. milk
Sire's Dam's	,,	10370 ,,	...	7 ,,	,,	9354 ,,
Sire's D. Dam's	,,	9510 ,,	...	12 ,,	,,	8033 ,,
G. Sire's D. Dam's	,,	10215 ,,	...	7 ,,	,,	9386 ,,
G.G. Sire's D. Dam's	,,	12565 ,,	...	10 ,,	,,	8853 ,,
G.G.G. Sire's D. Dam's	,,	10088 ,,	...	2 ,,	,,	9754 ,,

Inspection of the Herd is Invited.

Visitors will be met at the Station on notifying the Manager, State Research Farm, Werribee.

Application for purchase to

Dr. S. S. CAMERON, DIRECTOR OF AGRICULTURE, MELBOURNE.

MEGGITT FOODS

ARE GOOD—ARE UNIFORM—ARE RELIABLE

DAIRY FOODS **PIG FOODS**
POULTRY FOODS **HORSE FOODS**

MEGGITT FOODS contain a liberal percentage of Linseed Oil Meal, the most desirable food ingredient for all stock, under all conditions.

MEGGITT FOODS contain the proper amount of Mineral Matter (Calcium and Phosphorus) so necessary for bone-making. Recommended by feeding experts everywhere.

MEGGITT'S LINSEED OIL MEAL

PROTEIN 33% or better—made by old process from thoroughly-cleaned Indian flaxseed—is of recognised superior quality.

We are prepared to supply Linseed Oil Meal and Stock and Poultry Foods to the trade in either small or large quantities.

Write and ask us for samples, literature, and prices.

Victorian Representative—

Messrs. HARRISONS RAMSAY Pty. Ltd., 666 Bourke St., Melbourne

Meggitt Limited

HEAD OFFICE 76 KING ST SYDNEY (Works: Parramatta)

Manufacturers of Linseed Oil, Cake, Meal, and Stock Foods.

SP
630-5
V645